

**The K-12 Online Teaching Dynamic: A Study of Educators at Multiple Cyber
Charter Schools in Pennsylvania**

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This Ed.D. Dissertation Committee from The School of Education at Drexel University certifies that this is the approved version of the following dissertation:

The K-12 Online Teaching Dynamic: A Study of Educators at Multiple Cyber Charter Schools in Pennsylvania

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Dedication

This work is dedicated to all the people in my life
who have supported, guided, and taught me each step of the way.

The first and most influential people, my parents,

Bob and Marijke;

My most patient and understanding person, my wife,

Cathy;

and

My youngest and most passionate supporters, my children;

Alex and Maddie

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Thank you.

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Abstract

The K-12 Online Teaching Dynamic: A Study of Educators at Multiple Cyber Charter Schools in Pennsylvania

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This study harvested and synthesized information on K-12 online educators within the State of Pennsylvania through structured interviews and artifact evaluations. As parents, students, and the greater K-12 educational community look for innovative ways to increase rigor and student achievement in the 21st century, educational technology is viewed as the conduit to that end. Using a multi-site case study approach, comprehensive research brought to the surface a profile of effective K-12 online educators teaching at various Pennsylvania cyber charter schools. This study sought to answer the following questions: What are the characteristics and competencies of effective K-12 online educators in Pennsylvania cyber charter schools? What evidence displays skills that are specific to effective K-12 online educators in Pennsylvania? These educators rely on their skills acquired during traditional pre-service training to teach in an online environment. Study participants stated they require skills that go above and beyond traditional knowledge, skills collectively known as digital pedagogy. In the 21st century, digital pedagogy skills are moving to the forefront of teacher usage and knowledge base. This is evidenced from the study participants' statements and the adoption of online teacher certification and credentialing by state departments of education.

Chapter 1: Introduction to the Research

Introduction to the Problem

Within the past 15 to 20 years, the landscape of education has changed rapidly. The growth of the school choice movement, proliferation of online schooling, and the encroachment of standardized testing and accountability have shaped this change. With roughly 49.8 million students enrolled in K-12 education in the United States during the school year 2014-2015, 7.47 million students received instruction either fully online or in some form of a blended experience (National Center for Education Statistics, n.d.). The challenge is how these changes, along with the rapid adoption of K-12 online education, will shape what the 21st-century K-12 classroom will be moving forward. The K-12 classroom is no longer overhead projectors, pull-down maps, student desks in rows, and the teacher front and center. Learning in today's world is messy; it encourages rapid student collaboration, supports self-directed learners, embraces a student's natural curiosity, and allows them to be navigators of their own educational path (November, 2012). It is no longer acceptable to be beholden to one prescribed curriculum, but instead, 21st-century educators are increasingly facilitators of knowledge and experiences so the 21st-century learner can go forth in a hyper-connected and ever-shrinking world with a broad knowledge base and a healthy skillset (Soule, 2014). Coupled with those changes is the proliferation of K-12 online education.

Nationally, K-12 online education has garnered many accomplishments within a short tenure:

- Sustained growth in attendance as displayed in charter school annual reports (Pennsylvania Department of Education [PDE], n.d.a).
- Judicious use of federal and state subsidies as codified in annual audits (PDE, n.d.c).
- Created the National Cyber and Charter School Conferences (Public Charters, n.d.).
- Recognized with a National Charter Schools Week (Public Charters, 2017b).
- Developed the Charter School Lawyers Network and the National Alliance for Public Charter School Attorneys (Public Charters, n.d.a).

There is movement nationally to recognize online education as a viable alternative for students and families, but in Pennsylvania the movement is sputtering. This is evidenced by the lack of a formalized purposeful inclusion of digital pedagogy into teacher pre-service education curricula (Archambault, 2008; Archambault & Crippen, 2009).

Bearing those facts in mind, what has not changed is how pedagogy, the art of teaching, has remained static. Educators are dynamic individuals. The role of the 21st-century educator is evolving and morphing to meet the demands of the “new” classroom (Archambault, 2010; Baghdadi, 2011). Institutions of higher learning across the United States and the world have recognized the exponential growth of online K-12 education, yet targeted, authentic, and sustainable teacher preparation in online pedagogy has remained stagnant. What is excellence with regard to 21st-century teacher preparation?

Unfortunately, a concrete definition of what constitutes that excellence is a moving target. The process of distilling the impactful skills or knowledge needed for effective K-12 online teaching is still evolving due to the ever-changing instructional technology field (Natale, 2011). School administrators and educational leaders must address this concern immediately, as the potential consequences will be lasting for years to come. Strategic partnerships formed between highly effective schools enmeshed in K-12 online education, along with universities, can bridge the training gap until the Pennsylvania Department of Education (PDE) puts forth a viable and sustainable solution. These partnerships are just one avenue that make impactful changes and remediate this concern in the interim. Pre-service teachers, whose preparation contains embedded online course development techniques, germinated authentic online assessments, and relationship building methodologies, possess a broader knowledge base and can better transition to online educators (Zeichner, 2010).

Voluminous amounts of information in administrative textbooks, professional journal articles, and evening news highlights have displayed and published varying concerns about teacher recruitment and retention in traditional “Brick and Mortar” (B-M) settings (“High-Fliers in the classroom,” 2015; Rinke, 2014; “School’s out,” 2015; U.S. Department of Education, n.d.; Zelon, 2014). This awareness is due to myriad reasons too numerous to list. Yet the most prolific concern is the muting of digital pedagogy in pre-service teacher programs. From teachers’ unions to leaders in a major United States political party, many have voiced critical opinions about online education and its viability (Barton, 2015; Clarke, Hurlburt, & Wines, 2007; Schrum & Sleeter, 2013).

In B-M settings, teacher and administrator effectiveness tools have proliferated in the education classroom to increase the quality of instruction and school management. Many aspects of online settings affect the quality of online instruction (Clary & Wandersee, 2010):

- Knowledge of varying Learning Management Systems
- Broad understanding of how to assess authentically, utilizing the digital tools
- Utilizing varying tone and intonation cues through a microphone
- Awareness of camera presence and its functionality.

The aspects are wholly different in nature, from a pedagogical standpoint, than those contained in the traditional B-M classroom. The list above highlights just a few of the major area differences between traditional classroom teaching and its online counterpart. Overall, a deep technology focus is the kingpin to differentiating between both educational environments. To drill down deeper, the technology aspect is not merely an “add-on” to an existing lesson, task, or assessment, but it is a major component of the curricula, delivery, and relationship conduit for online education. Effective online pedagogies and other related teaching strategies are key to learner success and a positive online experience (Davis & Benson, 2012).

K-12 online school entities view human capital as their chief investment for the following reasons: financial, educational, and pedagogical. It is in the best interest of the school to employ all resources to attract and retain high quality educators who meet the needs of students and achieve the goals necessary to attain increased achievement in an online environment. This multi-site ethnographic and artifact study examined and explored the unique competencies and characteristics of K-12 online educators in

Pennsylvania through one-on-one, in-depth interviews and a comprehensive document review of educator evaluations.

Statement of the Problem to Be Researched

At the close of school year 2015-2016, the following gap in pre-service teacher training still existed: the Pennsylvania Department of Education (PDE) failed to mandate a requirement for college and university pre-service teacher preparation programs to differentiate between direct instruction and digital pedagogies. However, many novice educators are entering into the professional practice of online education due to the high staffing need in this area. Therefore, it is up to the online education organizations and programs to comprehensively fill the skills gap left open due to the lack of formalized and targeted digital pedagogical training. Easton (2003) postulated that online educators need advanced skills in the following areas: management, assessment, and engagement. Barbour, Siko, Gross, and Waddell (2013) put forth the claim that almost all online educators teach the way they were taught, direct instruction in a traditional brick and mortar classroom. Yet, to believe the skillsets are the same and current pre-service teacher training practices are adequate is erroneous (Kennedy & Archambault, 2012).

From an oversight perspective, all pre-service and current in-practice educators are beholden to the same professional standards. There is no differentiation with respect to venue (i.e., traditional public, charter, private, and parochial) or when it comes to the maintenance of their certification. Holding a professional certification to teach is akin to owning a car. Your certification is an asset to be protected. It will need support and maintenance as one traverses through their educational career. This includes, but is not limited to, continuing professional development, awareness of the standards of

professional practice, and public decorum ideologies. The exception is the knowledge base needed to operate in the new and burgeoning field of K-12 online education. This exception is the heart of the researcher's focus.

Unfortunately, the lack of a PDE-approved professional certification in digital pedagogy has kept the online educator talent pool low in numbers. PDE has recently taken two soft approaches in a shift towards legitimizing online education. In 2014, PDE published a memo highlighting their latitude to allow college and university student teaching personnel to place pre-service teachers in online education settings (PDE, n.d.b), which will allow student teachers to have up to 50% of their student teaching experience conducted in an online setting (see Appendix A). The second PDE action was to install a new four-course endorsement program taught through colleges and universities that will highlight and expose current teachers to digital pedagogy. The completion of the four-course program will be noted on a teaching certificate after proper effectuation of the necessary PDE certification documents and fees.

Tangentially related is the effect online education has on school finances. With continued effects from the world economic market downturn in 2008, many schools and districts see online learning as a cost-neutral or better avenue to meet the new fiscal parameters (Natale, 2011). Furthermore, online education can address the teacher shortage in critical need areas as well as impact graduation rates and dropout rates (Christensen, Horn, & Johnson, 2008). Unfortunately, the PDE has not issued an approved professional certification in digital pedagogy (see Appendix B).

The State of Pennsylvania has multiple K-12 cyber school offerings for families seeking that option for their children; currently, 14 different schools are operating. Each

school is unique in their respective approach to curriculum, educator location, and overall general theme. Appendix C displays the current census as of November, 2016.

To teach in an online environment, an educator must possess competencies that are generally absent through commonplace pre-service student teaching and or traditional professional practice. The Association of Supervision and Curriculum Development, Harvard University, and The National Board of Professional Teacher online education are all silent on what constitutes these competencies (National Board for Professional Teaching, 2014; Rabbitt, 2012). Online educators who are seeing increased student achievement, as evidenced by standardized testing scores and diagnostic software, possess traits and skills propelling them outside of their B-M counterparts (Barbour, Gross, Waddell, & Siko, 2013). Exposing pre-service teachers to digital pedagogy within teacher preparation programs, not optional add-on course work, is critical to alleviating the shortage of online educators (Barbour et al., 2013). Sourcing candidates has become the main focus of most human resources departments supporting cyber schools throughout Pennsylvania. Conversely, after hiring, it is possible to groom and support candidates who do not possess any or all of the basic competencies needed to educate students in an online environment. It should be noted that all the 50 states employ an educator credentialing system to codify and publish minimum standards for teaching.

Purpose and Significance of the Problem

Purpose

The purpose of this ethnographic qualitative and artifact analysis study was to explore and examine the skills currently present within effective K-12 online educators in Pennsylvania. Among the 14 current cyber charter schools in Pennsylvania, recruitment,

retention, and onboarding of online educators is handled in a variety of ways. These varying methodologies strengthen the validity and reliability of the research study.

Volunteer subjects participating in this study will continue to stimulate the conversation about what qualities make up an effective online educator in Pennsylvania.

Significance

It is commonplace for professional education organizations such as the National Education Association, National Association of Teachers of English, National Science Teachers Association, etc. to publish, in their view, what standards and skills beginning teachers should possess. Many have even stated that beginning teachers should be equipped to instruct online (Linton & Journell, 2015). Basic attention at best has been afforded by researchers, scholars, educational policymakers, and university leaders regarding the lack of a formalized path/program to produce teacher candidates who can migrate to either a B-M, online, or both. Existing studies within the K-12 online teaching field narrowly and erroneously only measure outcomes as compared to their B-M counterparts (Vesper, Herrington, Kartoglu, & Reeves, 2015). Administrators, teachers, parents, and the public at large have in the recent past hastily embraced K-12 online teaching as the future of education without understanding the full scope of what it takes to successfully manage a school (Stauffer & Mason, 2013). Unless all the stakeholders involved with K-12 online learning can coalesce to bring about meaningful change and direction to increase the highly qualified online teacher pool, cyber education will continue to argue for its legitimacy (Cicchini, 2016; Watters, 2011). This research will assist those in K-12 cyber education leadership positions to continue to lobby state

education departments and universities for targeted and meaningful online educator pre-service preparation.

The intent and spirit of the research is to potentially expand the knowledge base and bring to the surface the continued gap in pre-service teacher preparation for future online educators. Additionally, the question remains about what path to take, what additional course work is needed for a certification or a true degree in the online education. Finally, this research looked at propagating the conversation about a potential trend towards a state approved certification(s) or a nationally based credential in online education that will have reciprocity in years to come. A comprehensive review of all the 50 states and their respective educational certificate offerings can be found in Appendix D). As of 2012, the states of Alabama, Idaho, Florida, Michigan, and New Mexico all require K-12 students to have successfully taken a least one online class before graduation (Kennedy & Archambault, 2012). The states' legislative actions and policies should be viewed as pioneers in modeling the need to recognize K-12 online education as a viable career path for new teachers. It is important that other states heed their direction and emulate a similar course of action in an expeditious fashion.

Research Questions Focused on Solution Finding

This multi-site ethnographic qualitative case study explored the skills and experiences educators need to become effective online educators in Pennsylvania. From this research statement, the researcher proposed the following research questions:

1. What are the characteristics and competencies of effective K-12 online educators in Pennsylvania cyber charter schools?

2. What evidence displays skills that are specific to effective, K-12 online educators in Pennsylvania?

To address the questions, the participants' knowledge of online education competencies was captured using a semi-structured interview protocol deployed in a one-on-one fashion. Along with the one-on-one interview, an artifact analysis of the participants' annual evaluation was engaged using an artifact analysis tool.

Conceptual Framework

Research Stance and Experiential Base

Constructivists believe the truth is relative and is firmly dependent on one's perspective (Baxter & Jack, 2008). The spirit of constructivism is to recognize the human factor. The main advantage of constructivism is the "close collaboration between the researcher and the participant while enabling participants to tell their stories" (Crabtree & Miller, 1999, p. 10). Constructivism allowed the researcher to develop a richer and deeper understanding of participants' actions (Lather, 1992; Robottom & Hart, 1993).

The researcher's personal experience with online educators has grown over the years. Between June 2013 and the publication of this dissertation, the researcher had to stretch his thinking about what constitutes the makeup of an online educator. Social Constructivism (SC) is the lens through which the researcher observed, during this research study. SC is based on the premise that knowledge is gained via a social process at the most basic level. In thinking about one's childhood, as one grows up and vacillates through a series of knowledge communities, the overlapping exposure to differing cultures/experiences expands the personal knowledge base. Eventually, a person

embraces a career path that will be a singular core community with unique nomenclatures, traditions, and mores that acculturate into their collective self-knowledge.

This study will continue to build upon the already present SC ideology of collegiality amongst K-12 online educators and engage this model as the foundation for an emergent and pragmatic perspective. The researcher harvested authentic and valid perspectives from one distinct group: teachers. Social constructivist theory enabled the researcher to further hone his epistemological outlook on research, especially in the qualitative realm.

As K-12 online education continues to evolve in an exponential fashion, the robust conversation about best practices has remained at or near the surface. On a daily basis, the researcher reflects on his own experience as an educational leader in an online school and how this continues to broaden the researcher's own knowledge base of online education. This personal reflection assisted the researcher in putting aside pre-existing beliefs or assumptions, which is especially critical when conducting or participating in a research study. With regard to the act of conducting scholarly research, "researchers must bracket out, as much as possible, their own experiences" (Creswell, 2007, p. 61), thus allowing the researcher to inquire and question in a thicker and deeper level for the qualitative one-on-one interviews.

Conceptual Framework

The researcher determined that three necessary traits must be present within an online educator in order to migrate to the effective level. Online educators need more than end-user exposure to online education content to become effective online educators.

1. **Teacher Preparation:** Targeted authentic exposure to digital pedagogy that will assist the educator when employed as a teacher in an online environment.
2. **Teacher Dispositions:** The online educator possesses the knowledge, skills, and a mindset positioned to make meaningful connections and relationships with students in a virtual environment.
3. **Instructional Technology:** An awareness and ability to use current and appropriate educational software/hardware that supports the global classroom.

These critical areas, and their symbiotic relationships, are displayed in Figure 1.

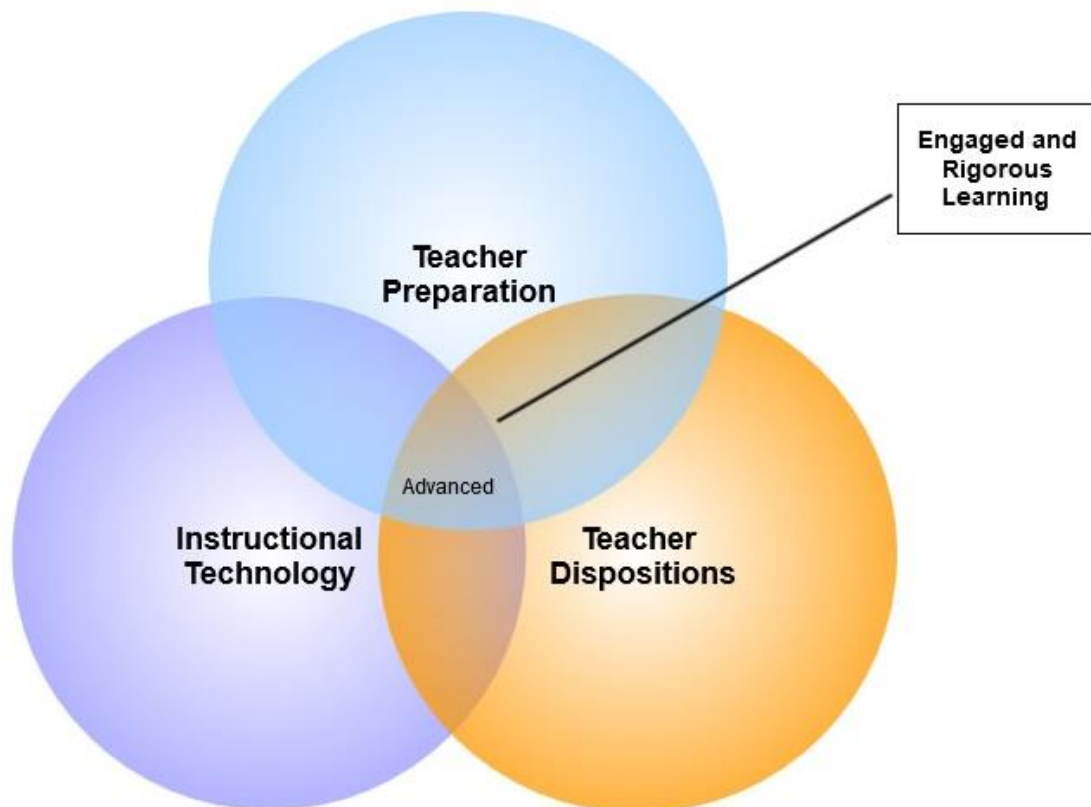


Figure 1. Conceptual framework of K-12 online educators in Pennsylvania.

Definition of Terms

Android

The Android OS is an open source operating system primarily used in mobile devices. Written primarily in Java and based on the Linux operating system, it was initially developed by Android Inc. and was eventually purchased by Google in 2005. The Android operating system is symbolized by a green colored Android Robot logo (Android, n.d.).

Asynchronous

Not going at the same rate or exactly together. Self-paced.

Blackboard (previously the Blackboard Learning Management System)

A virtual learning environment and course management system developed by Blackboard Inc. It is Web-based server software which features course management, customizable open architecture, and scalable design that allows integration with student information systems and authentication protocols. It may be installed on local servers or hosted by Blackboard ASP Solutions. Its main purposes are to add online elements to courses traditionally delivered face-to-face and to develop completely online courses with few or no face-to-face meetings (Blackboard, n.d.).

Blended

A formal education program in which a student learns at least in part through delivery of content and instruction via digital and online media with some element of student control over time, place, path, or pace. While still attending a “brick-

and-mortar” school structure, face-to-face classroom methods are combined with digital content (Blended, n.d.).

“Brick and Mortar” – (B-M)

Refers to schools bound to a physical space, like a specific building that students go to in order to be educated (Brick and Mortar, n.d.).

Common Core Standards

Formal name for the universally adopted teaching standards across the United States

Educational Technology (EdTech)

The field concerned with software and hardware that comprise online learning in an educational setting

Hybrid

Composed of mixed parts or characters

Instructional Design (ID) – or Instructional systems design (ISD)

The practice of creating "instructional experiences which make the acquisition of knowledge and skill more efficient, effective, and appealing" (Merrill, Drake, Lacy, & ID2 Research Group, 1996, p. 5). The process consists broadly of determining the current state and needs of the learner, defining the end goal of instruction, and creating some "intervention" to assist in the transition. Ideally the process is informed by pedagogically (process of teaching) tested theories of learning and may take place in student-only, teacher-led, or community-based settings. The outcome of this instruction may be directly observable and scientifically measured or completely hidden and assumed. There are many

instructional design models but many are based on the ADDIE model with the five phases: analysis, design, development, implementation, and evaluation. As a field, instructional design is historically and traditionally rooted in cognitive and behavioral psychology, though recently Constructivism (learning theory) has influenced thinking in the field (Instructional design, n.d.).

iOS

iOS is a mobile operating system for Apple-manufactured devices. iOS runs on the iPhone, iPad, iPod Touch, and Apple TV (iOS, n.d.).

Learning Management Systems (LMS)

A software application for the administration, documentation, tracking, reporting and delivery of electronic educational technology (also called e-learning) education courses or training programs (Learning management system, n.d.)

Massive Open Online Course (MOOC)

Name for open, free, and customizable online college courses

Moodle

A free and open Learning Management System

Online education

Online education is a type of distance learning—taking courses without attending a brick-and-mortar school or university. Instead, online students and teachers interact over the Internet (Price, n.d.).

Pedagogy

The art, science, or profession of teaching (Pedagogy, 2009, para. 1)

Special Education

Individualized education plans drafted to assist those students who have disabilities access their education

Synchronous

Occurring at the same time. Instruction delivered in real time.

Teacher Effectiveness

Evaluation of the effectiveness of professional employees (Pennsylvania Department of Education SAS, n.d.).

Web 2.0

The name used to describe the second generation of the World Wide Web, where it moved static HTML pages to a more interactive and dynamic Web experience. Web 2.0 is focused on the ability of people to collaborate and share information online via social media, blogging, and Web-based communities (Web 2.0, n.d.).

Assumptions, Limitations, and Delimitations**Assumptions**

Four critical assumptions formed the foundational framework for this study. The first assumption was that K-12 online education will continue to exist and eventually become a viable and respected career path for those in the field. This is not limited to teachers but will include support and administrative personnel as well.

The second assumption was that the K-12 online education field will continue to grow in enrollment. Unfortunately, there are many detractors ranging from politicians, teacher union leaders, and other administrators who willfully and knowingly diminish the many successful and productive cyber charter schools across the United States. This

“soft” war on cyber schools has continued to impugn the reputation of cybers but has not brought the growth to a halt.

The third assumption centered on those in leadership positions such as administrators, supervisors, directors, etc. Like the teachers, these individuals have not received targeted and meaningful training in the unique nuances of leading/managing an online school. The researcher has firsthand knowledge of this as an area of deficiency and currently categorizes his status as such. It is through other leadership support, administrator experience, and a personal interest in technology that the researcher has been able to expand his professional knowledge base on how to lead an online K-12 school.

The fourth assumption underlying this study was that educators, regardless of venue and medium, are resilient. In the researcher’s 21-year tenure, observations have been chronicled that educators always keep the lens of “what is best for the student” in the forefront. Therefore, it is not out of the realm or scope for them to work hard and diligently to make impactful connections with their students and facilitate student academic achievement and growth.

Limitations

The study focus was to bring to the surface the skills and the experiences needed to become an effective online educator in Pennsylvania. Therefore, this study intended to provide an avenue for participants to share their professional experiences and highlight where they felt the gaps exist for those involved in policymaking.

The first limitation is the real possibility that the researcher was only able to secure access to three or fewer cyber charter schools. This was further supported by the

fact that most, if not all, cyber charter schools do not share any resources amongst themselves. Hyper-competitiveness in student recruitment and retention solidifies this claim.

The second limitation supports the premise of this study. Due to the finite number of experienced K-12 online educators, there is much competition for the recruitment and retention of online teaching staff. Consequently, many cyber schools do not publish staff contact lists publicly for fear of losing a competent online educator. It is understood that all cyber schools make a greater financial and time investment to onboarding their staff versus their B-M counterparts.

The third limitation was that this study centered on teachers in Pennsylvania cyber charter schools only. Although the researcher can prognosticate that online educators in other states possess the same basic skillsets, this would be an unsubstantiated parallel that can, in the future, be affirmed or complicated by a subsequent research study.

Delimitations

The researcher chose to equally distribute the subjects amongst the three common educational divisions: elementary, middle, and high school. The reasoning was strengthening the validity of the data by securing information from online educators at each level. Site locations were limited to public cyber charter schools and not private, local or national cyber schools. This was done to ensure standardization of curriculum by way of the Pennsylvania Common Core Standards and the use of PDE-approved teacher effectiveness tools.

Summary

Online education is still in its infancy, stumbling ever so tepidly through today's educational landscape. For those persons involved in the leadership and management of K-12 online education in Pennsylvania, it is transparent that critical areas need immediate attention, specifically funding, staffing, management and leadership, and sustainability. This study employed an ethnographic approach to research. The intent was to develop a deeper understanding of what makes up an effective online educator in Pennsylvania. The study was conducted at various sites throughout the Pennsylvania cyber charter school system. Chapter 2 expands upon the existing research by unpacking what is delineated through the multi-site one-on-one ethnographic interviews.

Chapter 2: Literature Review

Introduction to Chapter 2

K-12 online education has seen exponential growth since its humble beginnings just 15 years ago. Although the reasons for this growth are too numerous to highlight, what is clear is the continuous need to focus on student achievement, teacher preparedness and effectiveness, global acceptance, and a richer/deeper understanding of digital pedagogy. This heightened sense of importance and awareness germinates from how the K-12 cyber education landscape is broken down into two genres: those schools who create their own curriculum and those who purchase their curriculum. Creating your own curriculum demands higher thresholds of online digital pedagogy. Therefore, one can deduce that the educator must possess competencies that go above and beyond those gleaned in traditional teacher preparation programs. Those who are currently involved in teaching K-12 cyber education exhibit traits of being well educated and highly motivated and embrace the challenge of teaching with technology (Larson, 2014).

Teacher effectiveness is defined as the measurement and evaluation of educators so schools can support them and their professional growth (Chou, 2012). The intent of these teacher observations is to enhance the quality of education and student performance while highlighting available professional development opportunities for the teaching staff. This process is not unique to B-M schools. Online education is beholden to the same federal and state standards as other public educational institutions, including mandatory accountability measurement instruments such as high-stakes testing. The

preconception that online education will someday supplant the traditional teacher is a fallacy (Li & Atkins, 2005)

Through the literature review process, a core set of strands was identified. It is clear through these strands that the online instruction movement is still continuing to evolve and develop. The strands of literature are as follows: teacher dispositions, teacher preparation, and instructional technology. As a supportive feature, contrary findings were highlighted as well. To display what was gleaned from the literature, a systemic review approach was applied and is also displayed within the paper.

Review of the Literature

Voluminous amounts of literature develop the story that the higher education field as a collective entity adopted online learning early. Higher education institutions saw the value of online instruction as an alternative medium to the traditional classroom in the late 1990s (Ciavarelli, 2003). A percolation of themes presented themselves regarding questions still being debated for those colleges and universities embracing online education. These themes are highlighted here: what is the amount of support needed to assist the instructors in transferring their skills from the classroom to the online course, what core technical competencies are needed, and to what extent are students receiving the same rigor and relevance as their B-M counterparts? These same questions can be parlayed to the K-12 online environment. The medium and delivery are the same, as well as the competencies needed, the rigor, and the relevance. What are different are the course content, assessments, and the venue. Effective online educators are continuously attempting to improve their craft by engaging targeted trainings and professional development.

The first stream of research is teacher dispositions. Since the online education field is still in its neophyte stages, many interpretations and opinions currently exist regarding the validity of, or the necessitation for, teacher characteristics or traits being any different in the digital-only realm. Teachers are multi-faceted and dynamic beings who bring their beliefs, attitudes, dispositions, abilities, and skills to the classroom. As a result of these characteristics, some educators easily transition to an online educator. The content of an online course may be delivered and produced through a blended model of synchronous and asynchronous lessons. It is critical that those tasked with teaching in an online environment are prepared for, trained on, and experienced with the available technology tools (Kent, 2013). A survey of teacher dispositions in a digital world causally displays areas of strength and need. This is critical to drive what type of, if any, professional development is required. The understanding of what it takes to be an online instructor will be useful for the field of education (Lobera, 2010)

The second stream expands upon the need for university teacher preparation programs to include and or embed online teaching practices and experiences within their course requirements. As the exponential growth continues in K-12 online education, so too does the need for job-specific training. Slippery Rock University is one of the first Pennsylvania universities to make it a requirement that pre-service teachers experience online schools (Schwab, 2013). Methods for engaging students, encouraging interaction, assisting students to be more self-regulated, and helping them stay on track are all part of the "art" of online teaching that can be sometimes difficult to cultivate (Archambault, 2010). As a direct result of this increased awareness at the university level, newly graduated students are seeing cyber education as a potentially viable career path.

The third stream encompasses the instructional technology component. It seems daily that a new software tech tool or other device is being brought to the market or shared for fair use in the classroom. Keeping up with these new tools is an arduous task. It is worth noting that not all professors or K-12 educators actually create their own content or courses (Koszalka & Ganesan, 2004):

Collis (1999) has suggested that well-designed online instruction must provide opportunities to appropriately (a) engage with multiple type of *resources* based on individual preferences, (b) improve the flexibility of instruction by integrating multiple *type of interactions*, and (c) integrate multiple *forms of communication* among instructors, learners, and others beyond what might normally occur in a classroom. (as cited in Koszalka & Ganesan, 2004, p. 244)

Today many educators are using instructional designers to imbed the content in their courses due to the overwhelming advances in technology. Furthermore, students are arriving as increasingly sophisticated technology users, bringing with them enhanced Information Age skills and new approaches to learning (Lobera, 2010).

Inclusion of the alternative ideologies supports and addresses the contrary view of teaching in an online environment. Many politicians, parents, educational leaders, and community members have engaged in discourse to debate whether learners in a cyber-class can master the same course curriculum as those in a traditional brick and mortar class. A common theme that has risen to the top of this debate is the concern for academic integrity (Compton, Davis, & Mackey, 2009). What should be noted is rigor and relevance seem to be consistent when the same course is offered in both B-M and online formats, even when taught by the same teacher/professor. There seems to be no significant difference in student achievement between online instruction and direct instruction (Singh & Stoloff, 2008). A critical key to student success in an online

environment is the relational piece. Students, whether enrolled in either K-12 or higher education, still need a teacher/professor connection. They seek a connection so they can engage with their teacher in either a B-M or online setting. It is clear, after reviewing the literature, that three core areas, minus the contrary view, are the foundational building blocks necessary for engaged and rigorous K-12 online learning: teacher preparation, instructional technology, and teacher dispositions. The degree of their importance and portability from traditional teacher training to measurable success is developed throughout the subsequent literature streams.

Teacher Dispositions

Teachers, as a group and individually, are very dynamic and complex. Their mindsets and character speak volumes about their dedication to the profession and students. Bearing that information in mind, it is not unreasonable to make the connection between educator grit and the desire to do whatever it takes to support a student so they can succeed. The rise of educational technology and other digital teaching methodologies have assisted educators in this quest. Digital pedagogy is an emerging field that moves beyond the traditional preparation and competencies needed to teach in a B-M or face-to-face model. Many states and local school districts have put forth a sense of urgency and immediacy in making sure online courses contain meaningful content as well as opportunities for students and teachers to connect within the course. The premise is that student-teacher connections are just as critical in a traditional classroom as they are in an online environment, and it is these connections that correlate to student success and course mastery (Vander Ploeg, 2012).

Digital pedagogy is the critical component understood and practiced by effective K-12 teachers who teach in an online environment. The ability to produce quality lessons and engaging content is paramount for student success within this new medium. Digital pedagogy is roughly defined as communication, collaboration, problem solving, and creativity (Apergi, Anagostopoulou, & Athanasiou, 2015). At a basic level, understanding the digital education paradigm is the beginning step to a viable career in online teaching. Many pre-service teacher candidates possess rich and deep technological skills without having formalized trainings in such areas; therefore, it is easy to move them beyond their capabilities (Carr-Chellman, 2015). Richardson and Alsup (2015) believe it is important for those who are making the change from direct instruction to online education to establish their own identity. This identity will assist the educator in making their transition to online educator smoother. Such identity will also help shape the online educator's need to have control over the course design, engage in the social aspect of online education, and establish student rapport (Richardson & Alsup, 2015). Lastly, in online education, teacher effectiveness moves beyond generally accepted B-M metrics to include technology proficiency, content deployment, teacher cognition, and other related factors (Chou, 2012). Teacher effectiveness, in any modality, is the final lens utilized in assuring the school and teacher are firmly centered around the student. Both digital and direct instruction pedagogy are complex ideologies that have many parts within. Although the complexities are similar, some aspects are unique.

It is widely accepted that online education administrators currently practicing in the field have no formalized training in observing educators in an online setting (Chou, 2012). Administrators have a duty to ensure instructional quality and follow established

standards and performance levels. The question is, can these “inexperienced” administrators adequately and competently assess what is high quality instruction in a K-12 online environment? Clary and Wandersee (2010) believe that focusing on quality online instruction and how that impacts the online classroom is the initial step in online teacher effectiveness. As teacher preparation and teacher effectiveness practices within online education still continue to evolve in the neophyte stages, teacher retention is rising to the surface as a high hurdle.

The foundational reasons for leaving the online education field are wide and deeply personal. Most human resources professionals cite exit interviews as the only valid information to build upon and make the necessary changes to stem the teacher churn in the field. Administrators, utilizing this information, have been able to distill core reasons as to why teachers leave the profession of online teaching (Richardson & Alsup, 2015).

The common theme for online teacher dissatisfaction centers on the lack of student-teacher relationships and interaction. Creating those relationships via the electronic medium is challenging. It is important to know who your students are and how they learn (Palloff & Pratt, 2013). Even those with the stellar university records and the traits that make them high quality online teachers, such as resiliency and strong desire to help those disenfranchised, still leave the profession (“High-Fliers in the classroom,” 2015). Teachers by nature understand they will be in the position to nurture and inspire learning through their interactions with their students. If those interactions happen to be artificial via an electronic medium, they may not be strong enough to supplant direct proximal interactions. Fuller and Yu (2014) reinforce the strong correlation to

connectedness between the course instructor and the student as an important factor in the success or failure within the course. Conversely, this interaction, or lack thereof, does affect students as well. Online education students desire active learning, content that is centered on themselves, and meaningful discussion and feedback (Clary & Wandersee, 2010; Gehlbach, Brinkworth, & Harris, 2012). Unfortunately, Clary and Wandersee (2010) did not drill down deep enough to find out why some students were disenfranchised and were not actively monitoring/engaging in their workload. Gehlbach et al. (2012) studied how elementary and middle school-teacher connectedness, or the lack thereof, was a solid predictive for student achievement and future career planning. They also examined, on a granular level, whether the increasing student-teacher relationship throughout the year improve or decline academic or motivational stamina (Gehlbach et al., 2012).

In Canada, the Ministry of Education is concerned about the quality of online learning (Henry & Meadows, 2008). They have delineated certain focus areas: personalized learning, quality, differences in online vs. face-to-face, content that does not automatically transfer, and non-verbal feedback (Henry & Meadows, 2008). These core areas highlight the basis for their nine principals of effective online teaching. The main theme is that teachers are no longer just providers of content, but generators of learning experiences in an online medium.

Henderson and Bradey (2008) corroborated and affirmed the Canadian Ministry of Education assertion about the online teacher characteristics. They claim educators must be aware of course infrastructure, student needs, and their own educator identity. Furthermore, many online educational institutions are soliciting students to engage in

meaningful dialogue about the course(s) they took (Henderson & Bradey, 2008). The information gleaned builds upon the premise that online educator presence and rapport helps increase educator and student success in an online environment.

In regard to teacher characteristics, the major findings of literature state that K-12 online education is still honing and refining its place in the instructional landscape. Furthermore, it is imperative that online educators possess innate characteristics to be highly effective in an online environment. Administrators are continuing to grapple with what tools to use when observing and maintaining instructional quality, even though they may not have been formally trained (Chen, Wang, & Qiao, 2009). Chen et al. (2009) stated that the data support the need for targeted training for online teachers' pedagogies and standardization of lesson design. Finally, excessive teacher turnover as well as the quality of administrative support and cohesion impact staff longevity and student achievement (Boyd, Ing, Lankford, Loeb, & Wyckoff, 2011).

Teacher Preparation

In the United States, federal, state, and local entities spend roughly \$3 billion to improve teacher quality (Vander Ploeg, 2012). The ever-growing need to prepare educators for the 21st-century classroom and beyond is where teacher preparation in the United States is in a quandary (Apergi et al., 2015). The World Language content area has been an early adopter of the K-12 online course education movement. World Language educators are developing the ability to explore world cultures, languages, and customs through the Internet. Unfortunately, English as a content has not seen similar traction (Compton et al., 2009).

K-12 educational instruction occupies a different approach when pairing technology with education. As a result, teacher preparation programs must adjust to meet the new needs in the marketplace (Lobera, 2010). To give a more authentic and realistic experience of pre-service teacher education, the online practicum must be infused within the student teaching experience for a more comprehensive experience. Once imbedded, critical data can then be sourced and analyzed from the pre-service teachers, effectuating any and all adjustments to the programs deemed necessary (Lobera, 2010). The 21st-century educator should be able to design, deliver, and support instruction in both mediums (Lisa, Barbour, & Menchaca, 2014)

During their study, Fuller and Yu (2014) attempted to point out the potential areas of concern regarding neophyte online educators. Examples include what learning management system to utilize, what assessments should be in place, and what supporting materials are needed (i.e., text or no text). The authors questioned the necessity of either synchronous or asynchronous lesson format. It is also suggested that any educator moving to online education should seek the help of their colleagues who may have experience in online education. This strategic mentorship will assist online educators in identifying the pitfalls before engaging in this type of course (Fuller & Yu, 2014). Contrarily, many educators, particularly at state-run virtual schools, have successfully navigated between online and face-to-face instruction without any additional content training (Dessoff, 2009). Some teachers feel there is no difference when teaching in a K-12 online setting versus B-M (Dessoff, 2009). Again, the educator still needs to know online pedagogical skills and have meaningful pre-service exposure to create a course that will engage the learner and is aligned to defined outcomes and or standards. Teach

for America supplements pre-service teachers' core educational backgrounds with a variety of weekend boot camps, seminars, and collaborative gatherings so the educators can swap ideas and support each other, even in the area of educational technology ("High-Fliers in the classroom," 2015).

The Association for Educational and Communications Technology is a professional association that has narrowed their focus to highlighting and improving instruction via technology advances (Cifuentes, Sharp, Bulu, Benz, & Stough, 2009). The goal was to utilize design-based research and expand upon how today's Web 2.0 technologies—specifically interactive journals, blogs, and wikis—can assist in the development of user- and community-created materials (Cifuentes et al., 2009). It is important to note the Cifuentes et al. (2009) study gives an authentic view of how long it takes to create web content and what skills are needed to do so. The depth and breadth of technological terms is comprehensive and similar to what an educator would need to know to successfully teach online.

Cifuentes et al.'s (2009) study pierced the question currently pontificated but not fully understood: what are the teaching skills needed, if any, to move from the B-M classroom to the online teaching environment? The teaching competencies needed to teach in an online environment vary more greatly than those needed to teach face-to-face (Journell et al., 2013). Davis and Roblyer (2005) surveyed the Iowa State online teacher training program and its intent of exploring the role of the online teacher, methodologies, and pedagogy. Currently, schools and districts are employing technical training for newly employed online teachers during the onboarding process to ease the transition.

Knowing how to navigate a learning management system was the most effective initial strategy (Davis & Benson, 2012).

Pennsylvania is one of the states strongly supporting K-12 cyber education. Most recently, Slippery Rock University's shift in pre-service student teaching from only B-M experiences to now include a cyber-teaching component as well is forward-thinking (Schwab, 2013). Recently, PDE's soft approach to a cyber-educator certificate stimulated the conversation about digital pedagogy. PDE chose to give universities the latitude to offer endorsements to an existing teaching certificate instead of installing another full teaching certificate. This online education endorsement joins other areas where the PDE saw an immediate gap and chose to solve that need via this action (see Appendix E).

The above examples demonstrate a small step for college and university cyber teacher preparation. A unifying cyber schooling standardization movement in Pennsylvania would suppress any legitimacy arguments. Currently, there is no standardized format as to how cyber schools should be structured, what curriculum they use, and if they are managed by a third-party management company.

Cyber education supporters have been postulating that the National Board for Professional Teaching Standards (NBPTS) should explore the idea of a national certification to become an online educator. Embracing the concept for future online educators to become nationally board certified cannot be an insurmountable barrier. With the continued rapid growth of online course participation as a requirement to graduate high school, it is becoming clearer that the future of online learning will be in a blended format (DeNisco, 2013).

The belief that teachers can seamlessly port over to become an online teacher just because they have B-M teaching experience has merit. Sixl-Daniell, Williams, and Wong (2006) dug deep into core skills that will need to be present to successfully teach online. Their claim is supported by the development of their own training program called The Faculty Training Program (FTP). The authors rely heavily on the importance of proper recruitment of candidates (Sixl-Daniell et al., 2006). Unfortunately, in K-12 education, timelines for recruitment and training are generally short and critical due to the hyper-fast-paced environment that is K-12 online education.

In summary, further study is needed in the area of what characteristics and competencies make up online teacher standards that are rooted in best practices. It should be noted that the path by which a pre-service teacher candidate enters the field, along with environmental conditions and morale, is a substantial factor in teacher attrition and retention (Boyd et al., 2011). Lastly, along with the standards, certification status needs to be consistent whether it is either locally developed or nationally based, as in the NBPTS. As echoed by Koszalka and Ganesan (2004), qualifications and competencies of those persons teaching online courses should be standardized. One question remains with online teacher preparation: can pre-service and existing teachers move from being the guide on the side to the guide on the outside (Beaudoin, 2013).

Instructional Technology

The landscape of K-12 online education, from a technical standpoint, is truly broad and wide. The precipitous rise of information and communication technologies has exponentially changed the world of K-12 education (Apergi et al., 2015). Currently, there are predominantly two strong users of online education: higher education

institutions and K-12 schools. Each has their unique differences and strengths. The passion about online education centers on the delivery system and modality. What is important to know from an educational technology standpoint is that educating adults versus young students in an online environment will require different hardware and software (Carr-Chellman, 2015). It is a mistake to blindly assume that hardware and software used successfully in a K-12 B-M school can automatically work in a K-12 online environment (Carr-Chellman, 2015).

From publicly funded schools to privately managed institutions, the one critical area is the same amongst all entities: the usage of 21st-century technologies. All online educators use some type of Learning Management Systems (LMS) to deliver their lessons either synchronously or asynchronously and monitor their students' progress (Lisa et al., 2014). Without a strong foundation in technology, an online educator will struggle at becoming high performing in the liberated online classroom (Lobera, 2010).

Sourcing teachers with solid foundational technology skills is paramount to staffing a K-12 online environment. Proper recruitment of candidates is time consuming (Koszalka & Ganesan, 2004). Some administrators erroneously believe traditional university-trained teachers can port over to become an online educator seamlessly without a targeted support system and framework.

Toven-Lindsey, Rhoads, and Lozano (2014) stated that computers should complement the educator not replace them. At the university level, students have gravitated to Massive Open Online Courses (MOOC). MOOCs on a basic level are intended to give learners control through a variety of methods of acquiring, collaborating, and critically engaging in an online environment. The pedagogical premises of MOOCs

are based on cognitive constructivism (individual attainment of knowledge through interaction) and social constructivism (knowledge gained through social interactions) (Toven-Lindsey et al., 2014). Contained within the Toven-Lindsey et al. (2014) study was the finding that there was an over-reliance on automated instructional tools within university usage of MOOCs. The case study of existing MOOCs supports the researchers' claim by making the causal relationship between course design, content, learner engagement, and student collaboration key to bringing about high achievement in any online teaching environment.

Ciavarelli (2003) claimed that to maintain quality over online instruction, it is necessary to establish an ongoing assessment process. Key to understanding this instruction is knowledge of digital pedagogy, awareness of instructional systems, understanding how humans learn, and recognition of the differences of face-to-face vs. online instruction (Ciavarelli, 2003). Furthermore, critical questions should be taken into account when designing online course content. The issue at the forefront in online education is how the constructivist model is essential for online learning to happen (Ciavarelli, 2003). Educators using 21st-century technologies historically keep the learner at the center and in control of their learning journey.

The researcher is cognizant that what constitutes best online teaching practices continues to be a new and uncharted area that is still evolving. The fact remains, today's beginning educators have a richer and deeper electronic foundational framework than those starting out a short 15 years ago. Some examples of these frameworks are as follows: the proficiency at the use of web-enabled technologies, software application usage that moves beyond the simple office suite, and the possession of multiple smart

devices. It should be noted that the realm of educational technology and applications for enhanced classroom instruction are above and beyond these basic and everyday skills gleaned informally. This gap is further exacerbated when attempting to create authentic, engaging, and relevant lessons and assessments in a K-12 online environment. These advanced technological skills, along with targeted pre-service teacher training that imbeds experiences in online education, will bridge the gap in current teacher training.

In summary, The International Association for K-12 Online Learning (iNACOL) along with International Society for Technology in Education (ISTE) have put forth competing but somewhat complementary standards. The iNACOL standards are supported by the mission statement evidenced below:

National Standards for Quality Online Teaching is designed to provide states, districts, online programs, and other organizations with a set of quality guidelines for online teaching and instructional design. The initiative began with a thorough literature review of existing online teaching quality standards, a cross-reference of standards, followed by a research survey to NACOL members and experts to ensure the efficacy of the standards adopted. (International Association for K-12 Online Learning, n.d., p. 4)

iNACOL has been gaining traction as a front runner in advancing their standards as ones state education agencies are looking to for guidance in K-12 online education oversight. The standards attempt to solidify and legitimize online education. With the explosion of Web 2.0 educational tools, social networking, and the infusion of technology into people's daily lives, online education has profited from this symbiotic relationship. However, many detractors cite evidence in the form of standardized testing results, student churn rates, and the lack of concrete socialization opportunities as the prime reasons online education is an inferior product.

Contrary Findings

Even with the exponential growth that online education is experiencing, online education is still subject to the legitimacy argument. From politicians, union leaders, and the stay-at-home moms, many people claim to “know” what online education is, but few truly do. When attempting to negate the growth of online instruction, educational leaders cite the statistic that 62% of the current online educators and 26% of the online administrators received no training before engaging in their online service (“High-Fliers in the classroom,” 2015; Vander Ploeg, 2012). To further complicate the issue, The International Society for Technology in Education’s (ISTE) published standards that are not research-based (International Society for Technology in Education, 2017). Building upon the issue of lacking training, many detractors of online education point to the social aspect of B-M schools as a positive. Unfortunately, these same detractors will also state that co-curricular and social activities are a detriment to the learning process (Hill, 2010). Lastly, in Pennsylvania, how educational funding is appropriated to charters and cyber charters is a continual battle. Detractors who are particularly at odds with online cyber charter schools is evidenced by the quote below:

funding for one online charter school, which served students from across the state and relied on school districts where its students resided to forward tuition payments, led to a fiscal crisis because schools refused to forward tuition to the online charter school. The issue was finally resolved when the state’s legislature passed Public School Act 88, which explicitly defined online charter schools as public schools and which required that they be granted charters only by the Pennsylvania Department of Education (2006). It also codified funding, stating that it was the responsibility of the student’s resident school district to make payments to an online charter school in which the student chose to enroll. (Lisa et al., 2014, p. 384)

Smith, Smith, and Boone (2000) attempted to highlight the differences, if any, between face-to-face direct instruction courses attended by pre-service special and regular education teachers versus those same classes in an online format. The narrow focus of the study was on lectures presented in an online environment, guided instruction, and peer collaboration. The parallel courses were to be as similar as possible. Students were given pre-and post-tests, and students were subject to control and experimental conditions. The implications are that some traditional instructional methods do port over to the online venue. Furthermore, communication was actually more effective among students in the online course versus those in the face-to-face one (Smith et al., 2000). In summary, the study supports the claim that online learning, when properly prepared, can produce the same results as face-to-face instruction. Further study in porting over more tried and true direct instruction methodologies into the online environment would help not only from an understanding perspective, but it would increase the body of literature and working methodologies. Carr-Chellman (2015) recently published findings from a meta-study of the recently available student achievement and demographic data that stated when variables were controlled, there was significantly little difference between online and B-M instruction.

Neuhauser's (2002) study is attempting to determine what, if any, differences may display themselves between a face-to-face and an asynchronous course taught with the same content, assessments, and materials. The metrics used were staged to keep student demographics similar and measure learning preferences and styles and course effectiveness. It should also be noted the author takes into account whether a learner is either an introvert or an extrovert from a personality perspective. According to the pre-

course and post-course surveys, there was no significant difference in either course section with regard to retention, average score, demographics, or technical ability (Neuhauser, 2002). Multiple instruments were used to assist in determining any relationship, casual or intended, between course administration fidelity and the student makeup.

Singh and Stoloff (2007) mimicked the Neuhauser study by piloting a class that was a clone of its face-to-face counterpart. They attempted to mitigate factors that affect online learners such as higher attrition rates, longer content workload, and increasing satisfaction. Participants in the course had a traditional student demographic makeup. A point of interest is students who were in the courses participated in various asynchronous tasks, tests, and written assignments (Singh & Stoloff, 2007). There is a growing perception change in the legitimacy of these courses and the content contained within them. One problem with the Singh and Stoloff study is that the authors only used a single class to support their claims. A broader sampling should be instituted. Some examples could be other venues, other disciplines, non-traditional students, and those at the graduate level, to strengthen the validity argument. Lastly, no observations or data were displayed of the online course professor or their technology profile.

A unique dilemma has arisen with regard to the teacher's role in a traditional asynchronous learning environment. Many online educators feel more like coaches rather than teachers due to the virtual environment. This role has many online educators questioning the validity and authenticity of the educational role (Beaudoin, 2013).

The studies highlighted in this section complicate the researcher's claim that current teachers, in order to transition online educators to an online setting, must have

targeted training, possess a deep knowledge of digital pedagogy, and engage in a pre-service experience to be effective online educators. The contrary studies postulated that traditional teacher preparation, along with some B-M teaching experience, can supplant the necessity for online education training and experience. Therefore, one can deduce, portability does exist to vacillate between a B-M classroom teacher and online instructor.

Summary

As stated previously, this review of the literature was commenced to affirm or complicate the premise that online educators possess unique skillsets and competencies to teach in a K-12 online environment. Jean Larson (2014) encapsulated the current state of teacher preparation for K-12 education within the past two years:

The results of this study indicate that those currently teaching online to K-12 students have demographic characteristics that are similar to face-to-face teachers, particularly in terms of gender, age, and ethnicity/race; however, the online teachers generally had higher levels of educational attainment, more years of teaching experience, and were significantly more likely to teach on a part-time basis. It was found that teachers working with K-12 students online are self-motivated, place a high value on learning and education, and enjoy the challenge and process of using technology for this purpose. Based on findings, only a limited number of university-based teacher preparation programs address any aspect of the methods and techniques required for teaching online, and even fewer offer online field placement opportunities for pre-service teachers. (p. i)

In the short 15 years since the commencing of K-12 online teaching, what constitutes best practices and the definition of an effective online teacher continues to evolve. This has created debate and complications in the field of study since agreement amongst the scholars and experts varies widely. Administrators and supervisors were not prepared for the immediate adoption of online coursework and the possession of digital pedagogical skills to support lesson design, pedagogy, and assessment. Consequently, the wide-open and non-standardized approaches have generated more queries than meaningful solutions

and direction. Journell et al. (2013) stated that just because teachers possess technological skills or access to a vast array of digital devices to use in an education setting, it does not automatically make the student more advanced from an achievement standpoint. Due to this professional chaos, it is critical to confront these issues and build upon the body of literature by succinctly studying the first three literature strands as a whole entity and bringing about meaningful change and focus. Further study is needed to narrow and delineate specific coursework needed to authentically prepare pre-service professionals for the K-12 online path. As more and more educational institutions, whether K-12 or higher education, move to and establish significant online presence, it is critical to understand the need for targeted and authentic teacher preparation. In Chapter 3, the methodologies and reasoning's used to commence the research process are discussed.

Chapter 3: Research Methodology

Introduction

The purpose of this study was to explore the experiences of educators who teach in an online environment. The intent was to bring to the surface what, if any, competencies they use that are above and beyond those needed to teach in a B-M classroom. The researcher employed an ethnographic multi-site case study approach. The spirit was to glean ethnographic qualitative data through in-depth, one-on-one interviews and use this information to continue the conversation about pre-service teacher preparation needed to best inform online teaching practices.

The research questions are highlighted below.

1. What are the characteristics and competencies of effective K-12 online educators in Pennsylvania cyber charter schools?
2. What evidence displays skills that are specific to effective, K-12 online educators in Pennsylvania?

The researcher adhered to and abided by all confidentiality protocols and ethical best practices when conducting this human subject research study. The sourcing and vetting of potential participants began after Institutional Review Board (IRB) approval. Information sheets highlighting any potential risks along with confidentiality statements/procedures and a consent statement reinforced the strictly volunteer status of the participants in the study. The benefits of the study were explained in detail to each participant upon his or her initial interest in becoming a member of the study. The researcher employed a purposive sampling method using a criterion reference. This may

be viewed as a restrictive practice as the pool of potential participants was artificially small due to the limited number of online educators in Pennsylvania. The researcher intentionally wanted to include only subjects who were in a teaching role.

Research Design and Rationale

In this study, the participants' knowledge of online education competencies was captured using a semi-structured interview protocol deployed in a one-on-one fashion as well as the engagement of artifact analysis. The researcher assessed the extent to which participants acquire knowledge specifically highlighting digital pedagogy. Digital pedagogy, and its inclusion in pre-service teacher preparation coursework, plays a necessary part in this emerging field. This exploratory status of the study directed the researcher to adopt a key informant approach (Creswell, 2013). "Using a multi-site case study approach by employing interpretive and purposeful information harvesting, two or more methods to confirm, cross-validate, and or corroborate findings within a study" (Biddix, n.d., para. 10) will strengthen the findings. The researcher espouses embracing a positivist approach due to the cause and effect relationship, or lack thereof, regarding educator success in an online environment.

The researcher obtained self-reported data from participants who were current online educators in Pennsylvania through one-on-one, ethnographic interviews using a standard interview protocol instrument. The one-on-one interviews were supplemented by a detailed artifact analysis of the subjects' annual/comprehensive teacher evaluation. Invitations to participate in ethnographic one-on-one interviews were extended to teacher subjects who expressed an interest in expanding upon their online educator journey. The intent of the ethnographic qualitative interview protocol was to bring to the surface

thicker and deeper experiential information that could not be gleaned via structured electronic means. The motivation behind the detailed artifact analysis was to glean other data contained within these formal documents. These documents may have potentially pinpointed other aspects of the educator that make them effective that were not brought to the surface during the comprehensive, one-on-one interviews. The datasets were collected in a standardized fashion and rendered to answer the research questions with both qualitative and demographic data.

Binding

A concerted effort was made to bind the case to remain narrow and focused (Baxter & Jack, 2008). This was accomplished by instituting the limiters of place and activity. Specifically, only public cyber charter schools located in Pennsylvania who educate students full-time via the Internet were considered viable study sites. This limiter was also supplemented by engaging in an ethnographic, multi-site case study approach. The multi-site methodology usage assisted in ensuring the data are reliable and valid. Every attempt was made to ascertain a minimum of three sites to partake in the qualitative survey. This practice enabled the researcher to follow a quality action research plan. Best practices were employed to produce stability and consistency while enabling the data to either affirm or complicate the research questions.

Site and Population

Site

The spirit and intent of this research was to produce valid and reliable data. A census of cyber charter schools in Pennsylvania displays 13 schools authorized by the PDE to accept students (see Appendix C). This number does not include private cyber

schools, blended private schools, or cyber/blended programs overseen by a traditional school district. All cyber charter schools in Pennsylvania are free public schools that cannot discriminate or profile a type of student to whom they allow admittance. The researcher solicited access to various cyber charter schools in Pennsylvania and was afforded access to multiple sites as evidenced in Table 1. Furthermore, by researching only cyber schools managed by PDE, standardization of each school was consistent. Some examples of this standardization are the administration of yearly student achievement testing, mandatory compliance with all laws and policies in place by PDE, adherence to the initiative of inclusion for exceptional students, etc. This continuity and similarity of the sites further strengthens the validity of data obtained.

Table 1

Listing of Pennsylvania Cyber Charter School Sites

Site #	Enrollment #	Years of Operation	School Performance Profile #
1	3000	12	57%
2	8700	11	45%
3	1000	15	62.4%
	Total = 12,700	Average = 12.66 yrs.	Average = 54.8%

Note: Adapted from <http://www.paschoolperformance.org>

Cyber schools overseen by traditional school districts are not positioned the same as cyber charter schools. The main difference is that cyber charter schools only teach in a virtual environment. They do not engage in direct, face-to-face instruction with students

as a captive audience. Traditional public schools that offer a cyber programing generally do not have the academic and technical supports, dedicated educational support staff, nor the resources to build rich and engaging online lessons. The premise is supported by the fact that school district-run cyber schooling programs are viewed as an “add-on” that is a departure from their primary method of instruction for the masses. Traditional school districts still have other related programs and activities to oversee. Some examples are athletics, fine arts, night school, etc. All of such related services pull at the finite resources available to support the academic programs ensuring their continued status as “value-added.” However, school districts have made it a priority to stem the loss of tax dollars being redirected to cyber charters by opening their own cyber schools (Rizzo, 2012).

Currently, there is no uniform standard as to the staffing and curriculum arrangement at the 13 cyber charter schools in Pennsylvania (see Appendix F). Some schools allow their staff to teach out of their homes, some work a blended schedule of time in and out of an office location, and some require their staff to work out of a central location daily. From a curriculum standpoint, there are two classes of cyber schools: those that create their own curriculum and those that purchase curriculum from a commercial vendor. The researcher sees these variations in online schooling methodologies as pillars of strength to negate any claims to bias, validity, or reliability.

Population

Due to K-12 online education being categorized in its infancy stage, not only in Pennsylvania but across the country, the target population for participation in this study was slanted towards those educators who would be considered neophytes. Of the current

14 public cyber charters schools in Pennsylvania, 71%, or 10, service grades K-12. Fourteen percent or two schools educate only grades 7-12, and the remaining 14% or two schools educate 9-12 only. A total of 1,552 teachers teach in a K-12 online setting. The balance of education professionals is higher at the secondary level, 7-12, than at the elementary, K-6 (see Appendix F).

Online schools use the term “churn” to describe the continuous expanding and contracting of their enrollments numbers. Churn rates are disproportionately higher at cyber charter schools than at any other school across the Commonwealth. This is primarily due to students and families searching for the most up-to-date and current electronic equipment and ease of credit attainment. The churn places undue stress and pressure on the cyber school system to onboard and dis-enroll students in a seamless fashion. Furthermore, the teaching staff is continually seeing class rosters in a non-homeostasis status (Saul, 2011).

The researcher attempted to affirm or complicate the problem statement through the personal experiences and artifact analysis. The diversity in demographics and educational background assisted in gaining validity for the data secured. The strictly volunteer status of the subjects’ participation had exponential implications as to the research problem viability (Bryman & Burgess, 1994).

Using human subjects in any form of research brings about complex and ethical issues. The subjects were exposed to detailed explanations highlighting the importance of the study, how their contribution would impact it, descriptions of any potential risks in terms of confidentiality and anonymity, and the overall expectations along with anticipated time commitment. A consent form was provided to describe the protections

for the subjects and formally record their acceptance of the parameters contained within the form (see Appendix G).

Research Methods

Description of Methods Used

Purposive sampling allows the researcher to think critically about the population and support the typicality needed. The criteria were as follows: first, subjects must have been certificated teachers or function in another support staff role as recognized by the Pennsylvania Department of Education. The support staff role could be either a guidance counselor or instructional coach. Second, the subjects must have taught or supported teachers in an online education environment. Third, the subjects must have demonstrated knowledge of how to create content for online education in one of two avenues, either curriculum or assessments. Lastly, it was imperative that any subject had at least completed one full year of service to make an authentic and valid assessment of their working environment. Table 2 displays the subject sampling as it pertains to the specific research questions.

Table 2

Subject Sampling Metrics

Research Question #	Type of Research	Research Modality	Type of Sampling	# of Participants
1	Qualitative	Semi-structured Interview	Purposeful	10
2	Qualitative	Semi-structured Interview	Purposeful	10

When setting parameters with specific goals and objectives to build a subject pool intentionally to maximize information, the researcher engages in purposeful sampling (Creswell, 2013). More specifically, this researcher intended to present multiple perspectives of the individuals that make up the online educator field. This symbiotic action is known as maximal variation sampling (Creswell, 2013).

Constructivists believe the truth is relative and is firmly dependent on one's perspective (Baxter & Jack, 2008). The spirit of constructivism is to recognize the human factor. The main advantage of constructivism is the "close collaboration between the researcher and the participant while enabling participants to tell their stories" (Crabtree & Miller, 1999, p. 10). Constructivism allowed the researcher to develop a richer and deeper understanding of participants' actions (Lather, 1992; Robottom & Hart, 1993).

Interviews

The researcher believes that to obtain a true and authentic snapshot of the problem, the usage of in-depth, one-on-one interviews would dig deeper to bring to the surface the pertinent data. It should be noted some quantitative demographic information was sought during the structured interviews. The researcher's stance was a strong, qualitative, ethnographic focus. The interviews commenced on a time and date chosen by the subject to limit the burden placed on the subject.

The interview protocol was standardized and semi-structured. It was used to conduct the one-on-one interviews and was derived from an existing research study and modified to amalgamate into the confines of this research (Larson, 2014). The questions were centered on the following broad themes: (a) personal demographics, (b) education

background, (c) pre-service training, (d) current online teaching assignment, and (e) technological skills (see Appendix H). The demographic data sought were age, gender, race, and relationship status. Educational background sought data on degree level, initial certification, add-on certification, and school/institution for pre-service education. Pre-service training questioning in online education harvested type, amount, and venue. Current online position information obtained highlighted site demographics, current curriculum ideologies, and other pertinent educational organization system composition. Technology use prior to becoming an online educator, personal usage, and system preference completed the framework sought about each subject.

Closed questions with simplistic informational data assist in the time commitment burden and facilitated the use of computer statistical software in processing and compilation of the respondent answers (Bachman & Schutt, 2014). The further intent of the closed questions was to build profiles on each subject. These profiles were then consolidated and disaggregated to compile potential trends and themes across each research site.

Open-ended questions were intended to pierce deeper into the participants' base of knowledge and experiential stories. The stories continue to build upon the initial profile displayed throughout the closed-question sections. This qualitative analysis further honed in on the characteristics and competencies that make up an effective online educator in a Pennsylvania cyber charter school.

The researcher artificially limited the study to include only subjects who are either online educators or support staff. The intent was to limit the one-on-one interviews to a 45 to 60-minute window of time. The push for the limiter was to minimize the time

burden for the subject without compromising the validity and reliability of the semi-structured interview process (Jamshed, 2014).

To accommodate the various educational operations of the multiple sites, the researcher chose to utilize the deployment of a Virtual Research Environment (VRE). The VRE assisted in broadening the reach and scope of the research study, as some cyber schools allow their educators to work from home. Bearing that information in mind, creating the VRE enabled exponentially more potential subjects to engage in the study. Furthermore, establishing a VRE increases collaboration, is more secure, and echoes the ethos that is cyber education as an entity (Candela, Castelli, & Pagano, 2013). The researcher used the web conferencing tool Zoom. Zoom has shown to be easy to deploy, cost effective, secure, and generally in use by most educational institutions, both K-12 and higher education (Online Meeting Software Review, 2016).

The researcher used the imbedded audio recording feature contained within the Zoom web conferencing tool. As a backup, the researcher also employed the audio recording function on his personal cell phone in case VRE was subject to a technical malfunction. Both recording apparatus saved the audio capture as portable files. The researcher transferred these files to a digitally encrypted personal identification number SecureUSB flash drive. This type of drive is water/dust resistant, platform independent, and no software is needed (SecureUSB, n.d.).

Artifact Analysis

The artifact analysis provides a venue for a richer and deeper dataset that may display trends and themes not harvested through the one-on-one interview process. The researcher sought further information to affirm or complicate the study. In tandem with

the one-on-one interviews, a request was made for an analysis of a specific artifact provided by the subjects. The artifact analysis was performed on the subject's annual evaluation. Educator effectiveness tools by nature are intended to measure and define at what level a teacher operates, and the level is determined by applying standards based on a set of domains and norm sub-sets. The review attempted to provide valuable information that may not be brought to the surface voluntarily by the subject. This secondary analysis relied on the professional expertise of others to codify characteristics and competencies inside the teacher effectiveness tool with fidelity. The process and procedure for the artifact analysis is straightforward. Once the artifact was obtained, an analysis commenced using a modified artifact summary adapted from Bloomberg and Volpe (2008) (see Appendix I). After a compilation of all the artifact analysis summary sheets took place, the coding procedure commenced as displayed for the one-on-one interview transcripts.

Data Analysis Procedures

Interviews. With the potential for multiple subjects at multiple sites, the researcher engaged the assistance of a qualitative computer analysis software. This software assisted in the organization, storage, synthesizing, and development of visuals due to the voluminous amount of transcript pages (Creswell, 2013). Basic functionalities such as upload method, coding capabilities, cross-platform ability, and concept mapping performance are a few of the metrics the researcher employed to vet the commercially available qualitative software programs. The intent of the software tool was to “generate tabulated reports, charts, and plots of distributions and trends, as well as generate descriptive statistics” (Crossman, n.d., para. 2).

After a thorough and comprehensive review of the commercially available products using a researcher generated review process, the software package NVivo was chosen to be employed. The main thrust for choosing NVivo was the cross-platform ability and the user interface. Along with those chosen metrics strengths, the researcher sought guidance and opinions from other research practitioners to share their experiences and insight. Again, NVivo was at the forefront.

Transcribing is the process of rendering common speech into a standard, more palatable form of qualitative data. The SAGE Dictionary of Social Research Methods defines transcribing as follows:

In social research, talk is often transcribed non-technically, often by secretarial assistants, so that researchers can work through materials such as interviews, looking for 'content' (ideas, arguments, etc.) of various kinds. It is designed to support the examination of talk as social interaction; to include the features that participants demonstrably use and treat as significant; and to display the grounds for analytical claims. (Jupp, 2006, Section T)

Transcription is the process of converting audio, notes, or other text information into a format easily understood and acceptable for software processing (Creswell, 2013). The researcher sought multiple subjects at the various study sites. Applying the standard four hours of transcription time for one hour of audio recorded interviews across multiple subjects of eight or more, it was transparent that the researcher would need assistance. The researcher contracted with a professional web-based transcription service to ensure continuity of the study.

Coding is the process of assigning a value to themes derived from the spoken word. Coding assists the researcher in the task of interpretation and potential findings in a study (Hadsell, 2012). The researcher filtered out the superficial content and brought to

the surface the beliefs, experiences, and philosophies of each participant. Creswell (2013) and Tesch (1990) put forth recommended general procedures when coding:

1. Read generally the first-time through
2. Break the text into broad-based segments
3. Distill through the segments using a lean coding methodology
4. Sanitize out redundant or overlapping codes
5. Germinate themes based off the final codes

The researcher used the interview trends to initially bracket out the broad-based segments, which were subject to further scrutiny to delineate themes. A second thematic review was engaged to seek interconnectedness highlighting potential support or complications for the research questions. Figure 2 displays this synthetization process graphically.

The interview protocol was standardized to strengthen and provide consistent questioning, which in turn reinforces the oral interview reliability. The validity of the study was solidified by comprehensively reviewing the formal observation artifacts submitted by the research subjects. These codified observations were compiled by a third party not associated with this study. This unbiased and neutral party coalesced the independent analyses of the subject using predefined metrics. These metrics may bring to the surface other aspects, qualities, or nuances not verbally shared in the interview by the subject. It should be noted that this research is a qualitative study with some necessary descriptive statistics included to build a profile of each research subject. These descriptive statistics could be considered quantitative in nature.

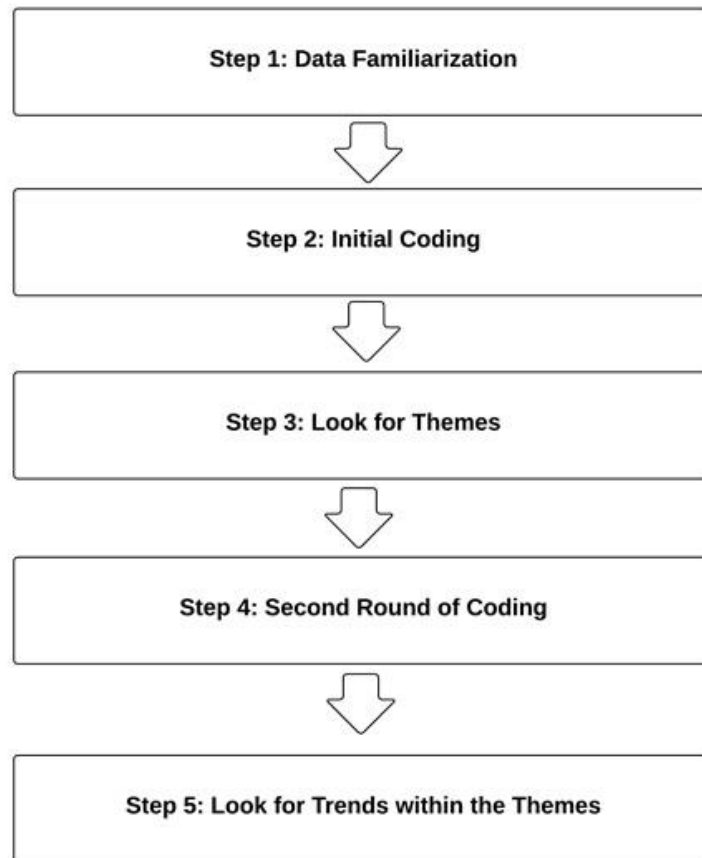


Figure 2. Coding process flow chart.

Artifact analysis. The process and procedure for the artifact analysis was unremarkable. Once the artifact was obtained, an analysis commenced using a modified artifact summary adapted from Bloomberg and Volpe (2008) (see Appendix I). After a compilation of all the artifact analysis summary sheets took place, the coding procedure commenced as displayed for the one-on-one interview transcripts.

Interpretation and outcomes. The intent of the data interpretation phase is to morph the data from collective numbers and codes into potential findings that either affirm or complicate the problem statement. Bearing that information in mind, it is helpful to apply some tests to the findings. This study used relevance, impact, and sustainability. Broken down, relevance explained whether this study expanded the knowledge base and the body of literature. Impact questions whether the stakeholders and those leaders in the teacher preparation field see the importance of this study as the researcher does. Finally, the concept of sustainability examines what further study, research, conversations, etc. will support the viability claim that K-12 online education is a real career path. The outcome has yet to be captured from data analysis as to what picture K-12 online learning will paint within the 21st-century educational landscape.

Interview data were coalesced and entered the NVivo software tool using the preferred uploading protocol. Once uploaded, the software tool displayed the foundational sets of variables based on the interview questions. The basic qualitative analysis and tabulating of the resulting values assists in determining trends and themes. The graphical displays and interpretive values assisted the researcher in showcasing the diversity of the participant pool. Furthermore, the grouping of answer trends could point to where strong category paths would germinate further open-ended questioning strands.

Following all coding and transcribing, Bloomberg and Volpe's (2008) Process of Qualitative Data Analysis was used. Using the researcher's conceptual framework as a backbone, categories were defined to facilitate the development of repositories for the data collection (Bloomberg & Volpe, 2008). The researcher was aware that conducting face-to-face interviews generated strands of data outside the norm; this includes body

language, non-verbal communication, physiological response, and pacing of the interviews. Such raw data were co-mingled with verbal answers to the open-ended questions. Attempts were made to codify and build themes and trends with regard to the intensity and veracity of the open-ended answer content.

Timeline. It should be noted that data collection can be fraught with the potential for many hurdles, which can present themselves throughout the process of collection including the access to study subjects, the dynamic research process, or other encroachment tendencies towards the study. Bearing that information in mind, researchers present what is the most practical roadmap to successfully engaging in the task of collecting data. The timeline in Table 3 depicts this researcher's sequential roadmap to capture the necessary data in either affirming or complicating the problem statement.

Table 3

Timeline for Data Analysis and Reporting

Activity	Date
Development of research proposal	Summer 2016
Doctoral committee review and revisions	Late Summer 2016
Proposal defense hearing and approval	Early Fall 2016
IRB Certification - Drexel University	Late Fall/Early Winter 2016
Recruitment of participants	Winter 2016
Field research – Qualitative Interviews	Winter 2017
Data analysis	Early Spring 2017
Draft and finalize chapters 4 & 5	Spring 2017
Submission and defense of dissertation	Late Spring 2017

Ethical Considerations

The first step in the process of conducting research at the practitioner level is to seek Drexel University's Institutional Review Board (IRB) approval. The intent of the IRB is to review all practitioner research in order to preserve the principles of autonomy and beneficence as described in the Belmont Report (U.S. Department of Health & Human Services, 1979). All potential participants were informed of the steps instituted to ensure their privacy and confidentiality with regard to the information gleaned during the one-on-one interviews. Along with that information, participants were given a consent form

to highlight the usage of the study, potential risks and time commitments, and a reiteration that participation was strictly voluntary.

This researcher, at the forefront, employed best practices to ensure and protect the participants' privacy, their rights, values, and voluntary status. The researcher handled the potential ethical issues regarding interviewing within his own school in the following manner: all potential subjects were not directly supervised by the researcher; thus, any claims of mandatory participation were suppressed. The subjects followed the same path to the study as others as described in detail in the following paragraph.

Those subjects who were at other study sites were directed to a study infographic displaying the intent and purpose for the survey, their time commitment, collection modalities utilized, safety protocols in place for the participants, informed consent document, and the list of information shared. Subjects who further stated their interest in potentially being selected for the one-on-one interview were sent a follow-up email invitation to a website where they could select their interview time. The online scheduling tool displayed a friendly reminder of the voluntary nature of the study and their reserved right to withdraw. The researcher did not secure any identifying information about the participants, including, but is not limited to, directly soliciting identifying information through interview questioning as well as electronic footprints such as Internet protocol addresses. The privacy procedures were especially critical to reinforce for the respondents who may have been educators employed within the same organization as the researcher. Again, none of the subjects were under the direct supervision of the researcher. Lastly, it should be noted that all informed consent

responses were warehoused in a locked, secure, fireproof safe and stored for a defined time period of no less than two years.

The researcher adhered to and abided by all confidentiality protocols and ethical best practices when conducting this human subject research study. The sourcing and vetting of potential participants began after Institutional Review Board (IRB) approval. Information sheets highlighting any potential risks along with confidentiality statements/procedures, and a consent statement reinforced the strictly volunteer status of the participants in the study. The benefits of the study were explained in detail to each participant upon his or her initial interest in becoming a member of the study. The researcher employed a purposive sampling method using a criterion reference, which may be viewed as a restrictive practice, as the pool of potential participants was artificially small due to the limited number of online educators in Pennsylvania cyber charter schools. The researcher intentionally wanted to include only subjects who were in a teaching role.

The researcher pursued exempt status as defined by the Office of Human Research Protections in categories numbers one and two. Definitions of these categories are as follows:

1. Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (a) research on regular and special education instructional strategies or (b) research on the effectiveness of or the comparison among instructional techniques, curricula or classroom management methods.
2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: a. information obtained is recorded in such a manner that subjects can be identified, directly or through identifiers linked to the subjects and b. any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to

the subjects' financial standing, employability or reputation. (U.S. Department of Health & Human Services, 2016, p. 1)

The protections taken together served to insulate the participants and minimize any potential risks endured. This researcher ensured participants were exposed to minimal risk:

where the probability and magnitude of harm or discomfort anticipated in the proposed research are not greater, in and of themselves, than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests. (Penslar, 1993, p. 39)

The following chapter displays and describes, systematically, the findings and data analysis gleaned from the research as well as the summary of the research methods application.

Chapter 4: Findings, Results, and Interpretations

The purpose of this ethnographic multi-site case was to explore the experiential pre-service and in-the-field trainings for effective online educators. According to Marzano (2013), two measurement benchmarks of effective educators are the usage of value-added achievement scores and characteristics of teacher-leaders. Coupled with Stronge's (2012) view where educator performance exceeds the expected standard of effectiveness. The merging of Marzano (2013) and Strong (2012) effectiveness models provides a working definition of effectiveness that can be applied to this study. The researcher sought subjects who were deemed effective as evidenced in the following manner; either recommendation by the school's administrator and/or codified in their respective annual observation tool.

1. What are the characteristics and competencies of effective K-12 online educators in Pennsylvania cyber charter schools?
2. What evidence displays skills that are specific to effective, K-12 online educators in Pennsylvania?

Allen & Seaman have stated that today's multifaceted and complex processes contained within the classroom are dynamic (Allen & Seaman, 2014). Yet, K-12 online education has shifted the traditional paradigm of the teacher role moving from the locus of knowledge to facilitator. Students and parents are now the drivers of the learning process. They are taking a more active role in all aspects of the educational process (Johnston, 2003). This shift has empowered the teacher to facilitate learning via the parent or other designated learning coach. As noted by Johnston (2003), online education

represents reshaping the routine of the traditional school day to a real-world learning environment that is dynamic and engaging. The results and findings share how online educators in Pennsylvania cyber charter schools are stretching themselves professionally, the students, and the traditional way of teaching students.

This study employed a case study design, by which data was collected through semi-structured, one-on-one interviews and artifact reviews. The Findings section displays and highlights the answers provided by the seven volunteer subjects willing and qualified to participate. The seven subjects were from three different Pennsylvania cyber charter schools (Appendix J).

The Results and Interpretations section synthesizes the data and attempts to affirm or complicate the research questions. Each research question is addressed using the synthesized data to compose a deeper understanding of the research problem and purpose being studied. The interview data results are broken down by theme, then trend.

The one-on-one interviews were audio recorded and then transcribed into a traditional transcript review format. The artifacts were sanitized and then any pertinent data were encoded on the review template. NVivo software was used to code, analyze, and sort into nodes (QSR International, 2016).

Findings

Oral Interviews and Artifact Reviews

Three sites agreed to allow solicitation of subjects, with one giving full access. At the site with full access, the researcher solicited participants directly. This solicitation garnered three subjects. At the two other sites, solicitation was facilitated by a contact

who provided subjects already familiar with the study and its intent. These sites provided two subjects each. A total of seven subjects participated in the oral interviews, and four of the seven provided artifacts for comprehensive review. Table 4 displays the research subject demographics.

Table 4

Subject Demographics

Age	Race	Gender	Relationship Status	Highest Degree Earned	Years of Teaching Experience B-M / Cyber	Name
35	Caucasian	M	Married	Bachelors	4/3	Alex
41	Caucasian	F	Single	Masters	7/3	Maddie
33	Caucasian	M	Married	Bachelors	2/3	Gary
38	Caucasian	F	Married	Masters	8/3	Lucy
36	Caucasian	M	Married	Bachelors	2/5	Edward
30	Caucasian	F	Married	Masters	2/5	Cathy
30	Hispanic	F	Married	Masters	1/3	Chloe

The oral interviews and artifact reviews took place during the winter of 2017. The interviews were completed with use of a web conferencing tool call *Zoom*. This tool allowed the researcher and the subject to connect at the subject's convenience. *Zoom* also offered the ability to pause and restart the interview without losing place or content. Over the course of three weeks, all seven subjects were interviewed and four teacher effectiveness documents were received.

Individual Subject Analysis

Subject one. Subject one is a 35-year-old Caucasian male with seven years' teaching experience and a bachelor's degree. Subject one is named Alex. Alex works at the Online Institute. Alex's experience as an educator has been at B-M and online schools. In addition to the oral interview, Alex was willing to share his annual summative observation to support the claim that he is an effective online educator.

The observation tool contained the accompanying annual rating metrics and administrator comments. The tool is a four-domain based teacher effectiveness tool. This tool is used by the administrator two times annually. Those times being at the mid-school year point and at the end of the year as a summative. A space is reserved for the teacher to self-reflect as well. Domain 1 is Planning and Preparation. Domain 2 is The Learning Environment. Domain 3 is Instruction. Domain 4 is Professional Responsibilities. Each Domain has sub-categories where the teacher is rated numerically on a 0-3 scale based on those specific metrics. The rating scale is as follows, 0 – Failing, 1 – Needs Improvement, 2 – Proficient, and 3 is Distinguished.

Alex obtained the status of Proficient in each domain. This led to an overall rating of Proficient. Through a comprehensive review of the tool, the predominant trends were; creativity, communication, and monitoring. These areas were derived from the Teacher Abilities section of the respective sub-domains. These trends tangentially support the oral findings of connection and training within the confines of Research Question #1 which is expanded upon below.

Regarding research question #2, the comprehensive review brought to the surface the following skills, flexibility, feedback generation, and targeted interaction. As Alex

has been rated effective based on the metrics of his school's teacher effectiveness tool, the researcher can deduce that the skills of flexibility, feedback generation, and targeted interaction are properties of effective online educators in Pennsylvania. The artifact review process assisted in validating the claim that Alex is an effective online educator and he has achieved that status without formalized training in digital pedagogy.

When the researcher posed a question about his potential tenure as a cyber educator, the answer was clear, resolute, and direct. Alex saw himself continuing as a cyber educator. As a matter of fact, he shared that this modality of educating students really resonated with him.

Alex expanded upon his reasoning to move to become an online educator. The shift was for financial reasons, career stability, and work/life balance concerns. Once these basal questions were gone through, the discourse became more fluid and organic. Alex reiterated he felt more comfortable teaching in a virtual setting than he did when he was teaching in a B-M setting. When pressed further for a thicker response, he stated that he was "looking to move to a school setting that was less focused on behavior management and more focused on education." Alex wanted to "focus on building engaging lessons and meeting state standards, and teaching larger amounts of students and working with more highly motivated students with higher goals, more career-oriented goals." As stated in the observation, lesson design is a pillar of strength for Alex along with definition of critical assessment criteria.

Alex postulated that the student/teacher relationship is stronger in an online environment than in B-M. These connections are more positive, and the teacher has to engage more deeply with the parent, as they are the de-facto educator. This, in turn,

“brings more satisfaction” to him as an educator. Work/Life balance and personal satisfaction were the two critical areas where Alex saw immediate change in himself. As written in the formal observation section of Professionalism, Alex grew in the area of compiling and receiving constructive feedback,

Alex was forthright in stating he had no pre-service training prior to becoming an online educator nor did he have any formal course in such. Alex explained that the school provided a comprehensive training program:

I got an extreme high amount of preparation from the organization. It was a two-week orientation program, and one of those weeks was more or less a group session of all new hires, just trying to figure out how to use the system with kind of a mentor supervising. Then the second week was more of a team-building approach, a little bit more of a professional development class-oriented program where the tenured educators and administrators would have classes that you would learn techniques and tools to use, technology tools.

After the formal training period, Alex spoke to how the most helpful preparation was the time spent with veteran online educators. More specifically, using lessons from his colleagues in a model/template fashion allowed Alex to craft his own activities, assessments, and lessons. Alex believed lesson sequencing and pacing were the most challenging aspects to grasp, as his school followed an asynchronous design.

From a professionalism lens, Alex stated he had to:

retrain the way I—how much content I could put in a lesson. Without a classroom with a bell, you don't know how long a kid spends on a lesson. There is no set time. It could be long, it could be short. The biggest challenge for me was, yeah, thinking about how can I find a middle ground for students, that they can create this lesson that's doable in 45 minutes, all on the computer?

How a lesson could globally overlay into the online system and produce the same outcome was the area that Alex spent most of his first-year mastering. Alex stated that because his students were no longer a captive audience in front of him as in a B-M

school, understanding how to communicate what the content is took time to develop.

Alex explained that he would take his own lessons at home, just as if he were one of his students. This was echoed in the narrative section of his formal observation in the lesson planning section.

Along with the self-reflection, Alex truly believed his communication and connections with the students were stronger than they were when they were physically in front of him. Alex used varied ways to build these connections. Some examples were to employ choice with regard to what assessment they would like to take, sharing personal aspects of his life, or engaging token economies. Alex realized that strong communication actions and solid connections had a direct effect on student engagement. And it is this student engagement that assists in keeping the students moving forward and logging into class. Ultimately, if the students do not log in and engage with the course, they are not learning. This engagement of students and their achievement is reflected on Alex's annual teacher effectiveness evaluation. The intensity of the student engagement has enabled Alex to move into the category of proficient, based on the metrics of the teacher effectiveness tool. This proficiency level equates to effective or better.

Alex's school requires him to come to an office every day. Work from home options are allotted once a quarter. Alex stated the following about coming to an office to teach and how it has impacted him:

I feel like in the office setting where I'm not around mass of teenagers and young students, I think in the sort of more corporate office setting, I feel like my focus is incredibly better. My professionalism is more in tune. I think it's a really good environment to just work with teachers all day. You really start to learn how to do the right lessons, and really start to learn about the students of 2017, as opposed to being around kids in the classroom for 45 minutes, or a block

schedule, where you're just not really collaborating with teachers, you're more just talking with students.

In Alex's school, they have a weekly presentation by either a technology team member or a teacher where new educational technology is highlighted and presented for use by the staff. Alex believes that this type of authentic and meaningful teacher collaboration is critical to successfully teaching in an online setting. Coupled with an educator's sense of creativity and communication skills, one can make the transition from B-M teacher to online educator.

In summary, Alex experienced the same areas of growth that are experienced by all neophyte teachers. The growth and evolution takes time, and it is length of the growth time that vacillates dependent on the teacher's strengths and foundational educational experience. Alex's lack of pre-service training did not hinder his desire and drive to be an effective online educator. Through hard work, dedication, mentor and school support, and possessing a flexible nature, Alex has been able to excel as an online educator. The following characteristics and competencies were highlighted during the interview and artifact analysis, flexibility, engagement, communication, creativity, and strong organizational skills.

Subject two. Subject two is a 41-year-old Caucasian female with 10 years' teaching experience and a master's degree. Subject two's name is Maddie. Maddie is an intermediate grades teacher at Cyber Academy. The researcher follows a standard interview process and uses the same interview protocol with each subject. In addition to the oral interview, Maddie was willing to share her annual summative observation to support the claim that she is an effective online educator.

The observation tool contained the accompanying annual rating metrics and administrator comments. The tool is a four-domain based teacher effectiveness tool. This tool is used by the administrator two times annually. Those times being at the mid-school year point and at the end of the year as a summative. Domain 1 is Planning and Preparation. Domain 2 is The Learning Environment. Domain 3 is Instruction. Domain 4 is Professional Responsibilities. Each Domain has sub-categories where the teacher is rated numerically on a 0-3 scale based on those specific metrics. The rating scale is as follows, 0-.49 – Failing, .5-1.49 – Needs Improvement, 1.50-2.49 – Proficient, and 2.5-3.0 is Distinguished. It should be noted that Maddie’s school allowed each sub-category to have a point value as well, 1/10th of a point.

When sanitizing through Maddie’s formal observation, it is clear by the feedback comments that she always goes above and beyond for her students. Some examples are her willingness to meet with students individually at their convenience, providing extra practice through websites and creating lessons that can meet the needs of students performing at various levels. These sample actions display how Maddie has been rated proficient by her divisional level administrator. This proficiency level equates to effective or better in the Classroom Environment domain.

Maddie obtained the status of Proficient in each domain. This led to an overall rating of Proficient. Through a comprehensive review of the tool, the predominant trends were; flexible, positivity, and enthusiasm. These areas were derived from the Evidence section of the respective sub-domains. These trends prop up the oral findings of organization and communication within the confines of Research Question #1.

Regarding Research Question #2, the comprehensive review brought to the surface the following student engagement, and technology engagement. As Maddie has been rated effective based on the metrics of her school's teacher effectiveness tool, the researcher can deduce that the skills of student engagement, and technology engagement are skills of effective online educators in Pennsylvania. The artifact review process assisted in validating the claim that Maddie is an effective online educator and has achieved that status without formalized training in digital pedagogy.

Maddie's experience as an educator has been B-M and a cyber school. Early in the interview, Maddie was direct in stating she had never been a participant in formal or informal training with regard teaching in an online setting. Maddie plainly divulged that her path to becoming an online educator was simple; she needed health insurance coverage for her family. Her prior position did not offer any coverage. Since becoming an online educator, she has truly embraced the concept of online education.

Maddie expanded upon her teaching assignment, as it was rather unique. She teaches four sections of math of mixed abilities and ages. Her average class size is 30 and over 75% of her students are students with Autism. Bearing all that in mind, it is imperative to note that due to the individualized nature of her teachings, the cyber format has almost provided custom education paths for her students. The virtual setting has been able to assist her students in accessing their education, especially those for whom a traditional classroom was presenting concerns.

Maddie explained that her school allows educational staff to:

use any programs or platforms that we feel are going to be useful within our own classrooms. The primary instruction, you have to give your primary live instruction on Blackboard. You can use the other pieces to supplement it.

This professional latitude has provided a framework in which Maddie can supplement a student's core teachings based on data and their personal learning trajectory. This ability to identify a learning gap for a student and remediate it is one of the unique attributes of online education. Maddie is a firm believer that all students can achieve, and that it takes a dedicated educator to show them this success through a process of creating an individualized educational path. It is this dedication that is more prevalent in an online setting due to the confines of this education modality. Maddie's usage of her professional strengths in content knowledge, pedagogy, and instructional outcomes assist her ability to successfully educate her students. This is evidenced in the Planning and Preparation domain of her teacher effectiveness tool and her application of these skills in creating unique lessons.

Maddie highlighted how her training was deployed to make the transition from B-M teacher to online educator. Her personal exposure to online learning was limited to the status of an end user of online coursework for one class over a decade ago. Maddie's current school pairs all new staff with an existing staff member who is not in their content area as well as up to three days of targeted systemic training. The week-long training is followed by the assignment of a mentor, which was critical for Maddie's migration to online educator as evidenced by the following:

I had a great mentor, I had a phenomenal mentor. Which helped me tremendously, but we did a lot of training. After school hours, she was available to me, and she made sure to be available to me. I spent a lot of time on after hours training. Being able to engage myself as a—engage myself in practice with the platforms and using the platforms.

The assignment of a mentor following the week-long training is not unique to cyber schools. The PDE requires all public schools assign a mentor to new or newly hired staff.

Maddie is a very focused and driven educator, as was evident by her intonation when speaking about how she continues to learn new platforms and systems in the interview. “Learning to manipulate the platforms and figure out how to access different information” is where Maddie chooses to expand her knowledge base. The one area where Maddie believes is a continued gap for her and her school is the area of special education. There is “a strong need to prepare teachers who teach in an online environment, to work with their exceptional students.” When sanitizing through Maddie’s formal observation, it is clear by the feedback comments that she always goes above and beyond for her students. Some examples are her willingness to meet with students individually at their convenience, providing extra practice through websites and creating lessons that can meet the needs of students performing at various levels. These sample actions display how Maddie has been rated proficient by her divisional level administrator. This proficiency level equates to effective or better in the Classroom Environment domain.

Building upon the training areas, Maddie brought to the surface her four characteristics that make up an effective online educator:

If you’re going to be effective you have to be so amazingly organized that it would blow your mind. I also feel like you have to have knowledge of student learning trends. . . . You need to be able to connect with a child, without physically seeing that child. You have to have a rich and deep foundation in pedagogy.

Maddie dove deeper and expanded up one aspect: engagement. She believed you must reach the students and create that strong connection to facilitate their focus and attention. This, in turn, will increase student achievement by their work intensity.

From an organizational standpoint, Maddie is domiciled at her home to teach. She can go into the office if she chooses, but for her that is about 50 minutes away. The flexibility to work from home has assisted her work/life balance. Although, Maddie noted that it takes more of an effort on her part to engage with colleagues professionally. This can be accomplished by either a web conferencing tool or in person at the school's office. The only time Maddie is required to leave her home is when it is a mandatory travel time event. These events are centered around state standardized testing and other professional development-type activities.

In summary, Maddie's experience as a neophyte online educator was typical in delivery and length. What was unique was Maddie's personal drive to absorb as much knowledge as possible about becoming an online educator. She realized early on that she felt comfortable as an online educator and could see herself continuing on this career path. This was contrary to her initial vision. Maddie's passion for education is fueled by her own personal employment story and the need to be the sole provider for herself and her daughter. Maddie's innate ability to be flexible and responsive to students needs is uniquely suited for her current student audience. The following characteristics and competencies were highlighted during the interview and artifact analysis, flexibility, responsive, communication, reflective, and strong organizational skills.

Subject three. Subject three is a 35-year-old Caucasian male with five years' teaching experience and a bachelor's degree. Subject three's name is Gary. Gary is a

high school math teacher at Online Institute. His experience has been at both B-M and online schools. The researcher follows a standard interview process and uses the same interview protocol with each subject. Gary choose not to share his annual/formal teacher observation. No reasoning was given. It should be noted that Gary was recommended by his administrator. Therefore, he is deemed to be effective per the requirements within the site solicitation email.

Gary boldly stated at the beginning of the interview that when he completed his master's degree in mathematics, he was going to leave the profession. The interview protocol was structured in a way that it did not pierce the workplace satisfaction realm. The researcher did not pursue this line of questioning.

When questioning Gary regarding his tenure, he asked for clarification on how to answer the question. The researcher gave clarification, and Gary developed his story of how he came to teach online. Gary's story was very personal:

I've always had an interest in math. Really, I've always wanted to just help others to understand math. That led me into wanting to be a teacher in terms of just helping others. I got a lot of joy outta doing that, so I decided to make that a career.

Gary's reasons for becoming an online educator were like those of Alex and Maddie, financial and professional stability. What is contradictory to this line of reason is Gary's initial statement of his intention to leave the profession.

Gary pontificated that the B-M environment artificially suppresses the ability to make meaningful and authentic connections. This is due to the open classroom concept where everything is shared in a communal atmosphere. Contrarily in cyber school, almost all student/teacher communication is conveyed one-to-one.

If you reach out and show them that you are interested in teaching them and helping them to do better with their education, they will—it does then become a personal aspect to it. I do have a few students who I have a really great personal connection with and I talk to on a regular basis. They're always tellin' me everything that is goin' on. Sometimes we're just talkin' about what's goin' on in their life.

Gary did say the opportunity is there “to spend . . . as much time as you can” with online students.

Regarding training, Gary told of a robust series of professional development that allowed new online educators to learn the systems of how to “deliver the content to the students and findin' more effective ways to make content, make videos, send better types of assessments, work out a much more effective way to deliver a solid product as opposed to it just being strictly an online type where there's no teacher involved.” The training and support did not stop at the conclusion of the onboarding process. This has continued through his three-year tenure at Online Institute. Gary spoke of the collaborative environment. He has learned:

quite a bit and been able to share that with other teachers that are new to the online profession. They've picked up just as much, and they're also willing to help. There's definitely a nice group of people there that are always supportive of each other and helpin' each other to learn. It's never about if you can teach. I t's how you can effectively teach a student who's online.

Not one aspect of the training was more valuable than others. Gary believes the school's willingness to listen to feedback from the teachers about the trainings and where there were maybe gaps was critical. Gary fully embraces the philosophy that the school is giving the students “a quality education. That's what we're, as a whole, tryin' to work towards.”

Gary explained that two main characteristics must be present in an online educator for them to become effective. The first and foremost is, “A passion for learning, teaching, and helping others.” Students need to see your passion. If they do not see it, they will not believe in what you are teaching. In tandem with the passion is a desire, as an online educator, to have the motivation to put yourself in their role as a cyber student. Knowing and putting forth that you really do care about them and that you want them to learn, is the key. Gary’s passion is clearly reflected in his ability to move students who previously did not to achieve in math.

Lastly, Gary described the organization of his cyber school. Online Institute is a K-12 school where the teaching staff must come in to an office to teach. Gary felt the strong sense of camaraderie, support, and professionalism was critical in allowing him to germinate into an effective online educator. Gary works at the same school as Alex; therefore, he is privy and has access to the same instructional technology supports as Alex.

In summary, Gary is at a transition in his personal life. He shared at the outset of the interview that he is actively pursuing career options outside of education. Gary did state that his new career search would not in any way affect his honest and authentic participation in the study. What he did state was that his family is expanding and he is attempting to purchase a house. Gary has had a unremarkable shift into becoming an online educator. His trainings and onboarding were the same as Alex’s. Gary choose not to share his annual/formal teacher observation. No reasoning was given. The following characteristics and competencies were highlighted during the interview, passion for math and his students, motivation, collaborative, and strong organizational skills.

Subject four. Subject four is a 38-year-old Caucasian female with 10 years' teaching experience and a master's degree. Subject four's name is Lucy. Lucy is a high school Social Studies teacher at Online Institute. Her experience has been at B-M, alternative, and online schools. It should be noted that Lucy also possess two additional teaching certifications, Special Education and English. Lucy's special education training has positioned her to have a more solid foundation when it comes to understanding how to adapt and modify assignments, projects, tasks, and assessments. This is due to the fact that special educators work alongside regular education teachers to make sure exceptional students can access their education just like their non-exceptional peers. The researcher follows a standard interview process and uses the same interview protocol with each subject. Lucy choose not to share her annual/formal teacher observation. No reasoning was given. It should be noted that Lucy was recommended by her administrator. Therefore, she is deemed to be effective per the requirements within the site solicitation email.

Lucy's story about becoming an online educator is one that many people think applies to all those who teach online, a love of technology. Lucy explained that she has worked in many different spaces. She used the word spaces because some of her places of employment were not education related. Lucy likened her belief that creativity and technology go hand in hand. Therefore, becoming an online educator would be the best place for her to explore her educational creativity. This would also allow her to reach the students today who are more technologically savvy.

In the cyber environment as an educator, Lucy stated, "the Online Institute allowed you to take a walk out on a limb and try something unique and different, without

the worry of failure.” Lucy realized that being a teacher in a cyber world you must be able to embrace the dynamic nature of this new and evolving way of educating today’s youth.

The school provided, the PD. It was like, “This is new technology, try it out. It might not work, but try it out. It might not work for everyone, but it might work for your class or your subject.” That’s how I think, one you have to allow your teachers to have exposure to technology. The different programs, the apps, all of that.

Online educators seem to mimic the cartoon character Gumby, always willing and able to adapt and change, not only to their audience (read: students) but moreover to the global forces shaping the neophyte educational modality that is K-12 online education.

Lucy works at the same Cyber Academy as Alex and Gary. Therefore, we can assume she was afforded the same onboarding and training her colleagues were given. What was unique about Lucy’s description of her training was that she did not hold it in the same positive light as Alex and Gary. She provided a different perspective.

I think it was a little short, but I think the biggest thing is figuring out, allowing them to give the new employee more time to design that first lesson. Or be able to use that tool and say, “Just for the first couple of times, use this tool.” Instead of throwing the gamut at them.

Lucy was steadfast in her feelings about the school’s onboarding and training process.

“It’s very overwhelming. I will say it is very overwhelming, that first time you get it.

‘Cause it is a big leap. You have to change your mindset.”

That mindset change is a deep understanding of what it is like to be your student and see your lessons from their point of view. In this case, it is receiving course work in an online format. Lucy expanded upon how students may not follow your directions correctly or may complete a task erroneously. Then, add into the equation that they may

not have chosen to work on your course until 48 hours after you posted the lesson. The time difference enhances the one area where Lucy states is a fatal flaw in cyber education when delivered asynchronously: remediation and support. If the student completed the assignment completely incorrectly, one now must re-teach a concept that was taught potentially three or more days ago, without impeding on the forward curriculum progress of the rest of the class. Although this is not a new concept, it is exacerbated in the cyber world, as most students wait until the very end before handing in assignments.

Lucy, in her professional opinion, felt the following characteristics make up effective online educators: a thorough understanding of technology, strong organization skills, detail orientation, and being a strong communicator. She saw herself possessing the aforementioned characteristics. Although, Lucy was quick to point out that it took years for her to attain this level of comfortability.

Lastly, Lucy described the organization of her cyber school. Online Institute is a K-12 school where the teaching staff must come to an office to teach. Lucy described how her colleagues, "...were able to teach me." Lucy works at the same Cyber Academy as Alex and Gary. Therefore, she is privy and has access to the same instructional technology supports as them.

In summary, Lucy is a veteran online educator. She shared at the outset of the interview that she is actively seeking a teaching role at a B-M school. As Gary stated, Lucy did state that her new employment search would not in any way affect her honest and authentic participation in the study. What she did state was that she is seeking a more stable work environment. Lucy expanded how the recent budget impasse affected the school's ability to pay their obligations. This event reinforced her already growing

concern that an online education position may not be the most prudent for financial and stability reasons. The following characteristics and competencies were highlighted during the interview, creativity, organization, communication, attention to detail, and strong technology skills.

Subject five. Subject five is a 36-year-old Caucasian male with seven years' teaching experience and a bachelor's degree. Subject five's name is Edward. In addition to the oral interview, Edward was willing to share his annual summative observation to support the claim that he is an effective online educator.

Edward is a supportive tutor at Virtual Prep, where he is a teacher who is now at one physical location tutoring students in grades 7-12 in all math concepts on an as needed/drop-in basis. Edward's experience teaching has been at B-M and online schools. Edward was a very eager subject and almost gave the researcher the impression he had been waiting to share his story about being an online educator for some time.

The observation tool, provided by Edward, contained the accompanying annual rating metrics and administrator comments. The tool is a four-domain based teacher effectiveness tool. This tool is used by the administrator two times annually. Those times being at the mid-school year point and at the end of the year as a summative. A space is reserved for the teacher to self-reflect as well. Domain 1 is Planning and Preparation. Domain 2 is The Learning Environment. Domain 3 is Instruction. Domain 4 is Professional Responsibilities. Each Domain has sub-categories where the teacher is rated on a colored based scale on those specific metrics. The color scale did not come with a code to assign the ratings. What can be gleaned is that the color green =

Proficient, light blue = Distinguished, yellow = needs improvement. The rating of failing was not listed therefore it could not be discerned.

An overall summative rating was not given for each domain. The researcher calculated the instances of each color per domain and determined mathematically the overall highest displayed color. Therefore, based on that methodology, a rating of Proficient in each domain was determined. Through a comprehensive review of the tool, the predominant trends were; social, sense of community, and feedback. These areas were derived from the Teacher Comments section of the respective sub-domains. These trends causally support the oral findings of connection and preparedness within the confines of Research Question #1.

Regarding Research Question #2, the comprehensive review brought to the surface the following skills, individualization, engagement, differentiation, collaboration, and organization. As Edward has been rated effective based on the metrics of his school's teacher effectiveness tool, the researcher can deduce that the skills of individualization, engagement, differentiation, collaboration, and organization are properties of effective online educators in Pennsylvania. The artifact review process assisted in validating the claim that Edward is an effective online educator and he has achieved that status without formalized training in digital pedagogy.

Edward developed the reasons he became a cyber educator, and they fit the pattern of that of his professional colleagues: financial and career stability. Edward shared that he moved from a religious school to an online environment. His personal curiosity for the marriage of education and technology was also a mitigating factor. For Edward, technology has always been a personal interest.

The idea of having a greater—of finding other ways to use technology, to dispense it, and to facilitate that, and having it be a bigger part of what I was doing day-to-day was definitely comfortable for me.

Migrating from a religious school to public cyber charter school is quite a leap. It is known that religious schools place a higher emphasis on creating meaningful and authentic student/teacher connections. This emphasis aligns with religious schools needing to recruit and retain their students. Edwards' ability to successfully migrate this transition is testament to one of his many core talents, such as flexibility. Flexibility was highlighted in the Instruction section of his formal annual observation.

Edward took a different approach to his opinion about online education. The previous subjects sought out and expanded upon what was working in online education from a positive viewpoint. Edward chose to develop and bring to the surface a claim that is continuing to fuel the argument that online education is an inferior product. Edward stated, "I haven't seen data that indicates to me what qualities really are valuable in an online educator." Edward believes quantifiable data is the only way to support any and all claims of what qualities make up an effective online educator. And to date, he cannot point to any such study.

Edward, just like his colleagues, was not subject to any preservice training in digital pedagogy. His statement about onboarding and training was tempered with this opinion, "I haven't seen anything that communicates to me that anyone in my organization knows at all what best practices are for online." In short, it seemed Edward held the thought that Virtual Prep had not codified or mastered what is appropriate and what constitutes best practices when onboarding new staff to become an online educator. Edward further explained that for him, in particular, taking an online course in math at

the graduate level was “the most beneficial experience that I had in guiding me in what I believed I should be doing as a virtual teacher.” In section one, Planning and Preparation, of Edwards observation, his principal rated him as distinguished in the category of resource knowledge. Edward continually seeks out and engages in professional development to strengthen his ability to support students from his position at the drop-in center.

Edward was in a former role as a math teacher before transitioning to his current position as the math tutor in a drop-in center for Virtual Prep’s students. Virtual Prep has these centers dotted across the Commonwealth. Indirectly, these centers validate the claim that some hold in education regarding the validity and integrity of online education. The main reason is Edward has data that state his school is on par with standardized testing passing rates for the state. Virtual Prep realizes the investment in these five tutoring centers will pay dividends in securing that the students are continuing to access their education. Edward believes seeing the students at the drop-in center further strengthens his ability to connect and create relationships with them. This is evidenced in Planning and Preparation section of his annual formal observations and by data received by the school on the effectiveness of the center. Edward explained the following;

Parents who understand the content of the course, parents are a very—for as much as parents are a significant factor in their child’s education, parents are an even greater factor in the success of a student, in terms of course completion.

When asked, “What are the characteristics and competencies that make up an effective online educator in Pennsylvania?”, Edward could only share two things: meaningful student/teacher connections and the concept of being task-oriented. Edward did not develop or expand on any other characteristics or competencies.

Virtual Prep is a K-12 cyber charter school. Edward is domiciled in a drop-in center daily. He does not produce lesson plans or teach a certain cohort of students. Edward's day is dynamic based on the needs of the students who seek out extra help in math. This help could be self-directed or per the direction of the teacher of record for a specific math course. Virtual Prep utilizes a Professional Learning Community (PLC) model to disseminate trainings, professional development, and other academic needs to the staff. Staying current in technology and other areas is dependent on the employee's engagement in the PLCs.

In summary, Edward is a veteran online educator. Edward stated that working in online education and in his current roles works for him and his family. When the researcher pressed Edward for more detailed information about his school, role, and experience in an online education, he wanted to expand upon the lack of data showing students are succeeding in an online environment. Ironically, Edward was critical of cyber education in general including the school he is currently employed at. He is stating that no one education or government entity has been able to publish, produce, or support what is best practice for teachers in the online education field. He is actively waiting for that information to be published. The following characteristics and competencies were highlighted during the interview, student/teacher connectedness and task preparedness.

Subject six. Subject six is a 30-year-old Caucasian female with seven years' teaching experience and a master's degree. Subject six's name is Cathy. Cathy is an elementary teacher at Virtual Prep. Her experience as an educator has been at B-M and online schools. Cathy was very excited to share her story about transitioning to the online education world and how it has impacted her professionally. Cathy was not

willing to share her annual summative observation to support the research study. No explanation was given. It should be noted that Cathy was recommended by her administrator. Therefore, she is deemed to be effective per the requirements within the site solicitation email.

Cathy expanded her reasoning to move to becoming an online educator. The shift is like that of the previous subjects; the main thrust was for financial and career stability concerns. Cathy sees online education as a viable option for students who are struggling in a traditional setting. Cathy teaches students in a blended model, meaning she synchronously teaches her students 40% of the week, and for the balance of time, she teaches them in person.

Virtual Prep has implemented a hybrid teaching program wherein some of the education teaching staff in one grade level are assigned to only asynchronous students and other staff teach the synchronous students. This approach gives teachers and families the opportunity to track their students based on need. The asynchronous track can allow students who like to progress faster to do so, and the synchronous track allows students who need more time and support to have it. This favors a stronger connection with the parents by giving them input into their child's educational path. The online environment is positioned perfectly to support this type of hybrid arrangement.

Cathy was subject to the same training as Edward, as they both work at Virtual Prep. Cathy went into more detail about what the onboarding process looked like for those who had not worked in a cyber school prior. There were "many online training courses that we had to finish. You had to get an 80 percent or better. Some of those were just in learning how to navigate the system." Cathy explained that she went and sought

other supports from different staff members in the school to supplement her initial training. This included other teachers, instructional coaches, and administrators. Beyond that initial training was ongoing support through the formal new teacher's induction program and other work sessions.

The year is going to be a learning curve, and it is okay to ask questions. It is okay if either 10 people have already asked it or 10 people are wondering the same thing. Please just ask and step up and say what's working or what's not working.

Cathy was emphatic in stating how the environment at Virtual Prep was collegial, professional, and supportive of new staff. This opinion by Cathy runs contrary to what Edward stated. It should be noted Edward and Cathy work at different locations, different academic divisions, and have different core roles.

When Cathy was questioned as to some attributes that make up an effective online educator, she could not stop at just three. Cathy explained that online educators should be prepared, organized, receptive, reflective, open-minded, go-getters, and have an eagerness to learn. Cathy was developing how she, as a current mentor for a new staff member, supports and listens to her mentees so they can be successful as online educators.

Virtual Prep is a K-12 cyber charter school, and Cathy is domiciled in an office daily. She does not produce lesson plans or teach a certain cohort of students. Cathy is currently occupying a dual role as teacher and course designer. This opportunity was a way for Cathy to take a soft approach into an administrative role. From a training standpoint, Virtual Prep utilizes a PLC model to disseminate trainings, professional development, and other academic needs to the staff. Staying current in technology and other areas is dependent on the employee's engagement in the PLCs.

In summary, Cathy is a veteran online educator who has aspirations of moving into administration. Cathy has taken small steps/assignments to position herself favorable when she is ready to embrace that future leadership position. She was very excited to expand upon the multitude of task and activities she has participated in so far preparing herself for such a move. Cathy was like Alex when he shared his story of becoming an online educator, she was passionate and animated about telling her path to online education. Cathy holds the notion that online education is not inferior or better than a B-M education. She believes that is up to the strength of the curriculum and the educators charged with teaching it. The following characteristics and competencies were highlighted during the interview, organization, preparation, reflectiveness and flexibility.

Subject seven. Subject seven is a 30-year-old Hispanic female with four years' teaching experience and a master's degree. Subject seven's name is Chloe. In addition to the oral interview, Chloe was willing to share her annual summative observation to support the claim that she is an effective online educator.

The observation tool contained the accompanying annual rating metrics and teacher comments. The tool is a five-domain based teacher effectiveness tool. This tool is used by the administrator two times annually. Those times being at the mid-school year point and at the end of the year as a summative. Domain 1 is Curriculum and Planning. Domain 2 is Instruction. Domain 3 is Assessment. Domain 4 is Student Achievement, Attendance, and Communication. Domain 5 is Professional Growth and Professionalism. There is a point scale present but no points were visible on each sub-domain. What is visible is the total points breakdown; Distinguished 61-71 points,

Exceeds Expectations 47-60 points, Meets Expectations 32-46 points, Making Progress 21-31 points, and Unsatisfactory 0-20

Chloe obtained the status of Exceeds in 4 out of 5 domains. This led to an overall rating of Exceeds. Through a comprehensive review of the tool, the predominant trends were creativity and supportiveness. These areas were derived from the Evidence section of the respective sub-domains. These trends reinforce the oral findings of connection and interpersonal traits within the confines of Research Question #1.

Regarding Research Question #2, the comprehensive review brought to the surface the following student engagement, and technology engagement. As Chloe has been rated effective based on the metrics of her school's teacher effectiveness tool, the researcher can deduce that the skills of relationship building, self-reflection, and engagement of differentiation are skills of effective online educators in Pennsylvania. The artifact review process assisted in validating the claim that Chloe is an effective online educator and has achieved that status without formalized training in digital pedagogy.

Chloe is a high school teacher at Cyber Academy. She has had experience as an educator in both B-M and online schools. Chloe brought to the surface her initial struggle with transitioning to online education due to the fact she was hired for a dual role, 50% Social Studies – 50% Special Education. The transition was fraught with dual allegiances to special education procedures and policies and the day-to-day duties of teaching a core content area.

Chloe's path to becoming an online teacher is similar to the other subjects within the study. The shift was for financial and career stability. Chloe accepted the online

teaching position because she observed new teachers losing their jobs in traditional public schools.

You know, if I'm watching my friends lose their job in a public school, I think I can take this chance and try out this totally different thing that I've never even heard of before. Actually, I went all in and I decided to get excited and go for it.

A willingness to learn new things and experiences encapsulates Chloe's view of becoming an online educator. She follows this mantra, "I think there is a big difference between people willing to make that jump and see what's out there and people that wanna do exactly what they saw when they were in school." Working in a cyber environment, one must realize that online schools are in a constant state of change and one must have a willingness to accept this, according to Chloe.

Chloe's training is like Maddie's, as they work in the same school. Chloe highlighted how her training was deployed to make the transition from B-M teacher to online educator. Her personal exposure to online learning was nonexistent in her pre-service coursework. Chloe's current school pairs all new staff with an existing staff member who is not in their content area as well as up to three days of targeted systemic training. The week-long training is followed by the assignment of a mentor, which is not unique to cyber schools. The PDE requires all public schools assign a mentor to new or newly hired staff.

Chloe brought to the surface a unique aspect of online education. As previously stated, some subjects work from an office 100% of the time, while others have a hybrid arrangement—part of the week in an office, the other part from home—and finally, some subjects work from home 100%. Chloe chooses to implement a hybrid approach, as her school allows for that. Chloe ponders the difference in professionalism and student

achievement between online educators who work from home 100% of the time and those who work from an office 100% of the time. She postulates that those teachers who work from home are not as strong as those who work from an office who can collaborate with their peers. Chloe states she works from an office daily. She believes this interaction assists with not only collaboration and collegiality, but strengthens her attitude towards being the best online educator possible.

The characteristics that online educators should possess, according to Chloe, are creativity, strong interpersonal skills, wide range of tone, intonation of voice, and persistence. Connectedness with your students and parents is paramount. If a teacher cannot intrigue her students with lesson design and assignments, students are not going to do the assigned work. At that point, learning has ceased. Chloe stated that a strong student/teacher connection is crucial to student success in an online environment.

Chloe's unique position as a blended online educator - Special Education Social Studies teacher provides a unique perspective for the study. She can validate that exceptional learners can access their education in a truly online environment as well as receive the supports they need to see that success. Chloe's strength in lesson design, constructive feedback, and usage of data based decision making skills are what she relies upon to achieve this daily.

In summary, Chloe's perspective and thoughts are helpful and hurtful at the same time. She postulates that onboarding and solid foundational training are key. What Chloe also states is that teaching in an online setting in and of itself is unique. Although this uniqueness does not require formalized training before being hired to teach in an online environment. Throughout the interview, Chloe stated that student-teacher

connectedness, creativity, and strong interpersonal skills are critical to success as an online educator.

Results and Interpretation

The researcher determined that three necessary traits must be present within an online educator in order to migrate to the effective level. Online educators need more than end-user exposure to online education content to become effective online educators. The three traits are strong teacher preparation, rich instructional technology exposure, and varied teacher dispositions. From the data collected in this study, the profile of effective online educators at Pennsylvania cyber charter schools became clearer.

Teacher Preparation

A common trend amongst all seven subjects were they each possessed little to no pre-service training in digital pedagogy. Teaching and creating lessons or assessments in an online educational venue were never available to the seven subjects prior to becoming an online educator. Furthermore, only one subject had taken college level course work in an online format. The end user experience is considered helpful but provided infinitesimal, if any, knowledge on the subject. The data show all pertinent training has come from the specific educational organizations onboarding and continuous staff support programs. It should be noted some of this training was acquired on the job as well.

A pattern can be teased out to show that all seven subjects had prior B-M experience. Although their time in a B-M school setting varied, this experience can be considered to have provided a strong foundation to make the transition to online educator. Barbour (2012) stated that there continues to be an absence of empirical research of the

skills needed to be an effective online educator. Couple Barbour's statement with each state having different approaches to certification status and usage of online education in the K-12 sector, and it is clear no conversations about standardization have taken place. The absence of formalized training does not preclude it from being developed now or in the future.

Instructional Technology

Two of the seven subjects did state that it is important to have a strong grasp of technology. These are the same two subjects who shared having a personal interest in all things technology related. The trainings offered by the schools is comprehensive and deep enough to support educators who are transitioning from B-M to online. This is indisputable based on the state standardized testing scores of schools where the subjects taught. Therefore, we can deduce that past experiences and current onboarding trainings in the realm of instructional technology are sufficient to prepare new online educators.

When looking at the seven subjects as a cohort, six out of the seven are considered Gen. Y, also synonymous with Millennial. Gen. Ys were born between 1980 and the end of 1994. They are characterized as the digital generation because they knew music to come only from either a Compact Disc or MP3 format, have narcissistic tendencies, and are unable to function without their Smartphone. They are considered digital natives and their world revolves around email, text, and chat. Their personal brand and publishing their life happenings are key. Bearing all that in mind, it is not unusual to make the connection that most online educators come from the Gen. Y group. They innately have a digital sense and are comfortable communicating across varying digital modalities.

As the pace of technological advancements develop exponentially, so too does the user whom embraces their specific applications. The online educator is engaging these current and available technologies to make the meaningful and authentic connections with their online students. And it is through these connections that learning takes place in a cyber charter school.

Teacher Dispositions

When the subjects were asked what qualities, online educators must have to be effective, they brought forth many different attributes. The number of qualities was so large, the researcher engaged the NVivo Software to provide the 10 most frequent. These frequent qualities are arranged in an apple-shaped word cloud (see Figure 3).



Figure 3. Online teacher qualities.

The way educators adapt their current skills and learned abilities to assimilate into the online world truly displays their raw talents. The most prominent quality shared was engagement. In one form or another, each subject referenced student engagement as the

first and foremost quality that online teachers must master. Ultimately, if the student does not find your lessons, content, assignments, and assessments engaging, they will not log into your course.

These qualities are not unique to online educators. What is unique is the intensity with which they are employed and the ability to combine multiple qualities when creating course content. This is a common practice in online education, as teachers modify and supplement course materials to ensure they will globally overlay into their respective LMS. The parallel to this overall educational grit is the fact that a high percentage of online educators possessing advanced degrees. See Table 5 for historical studies codifying this information. Online educators in Pennsylvania best the General U.S. Population average for Bachelor's and Master's degrees by double-digit margins.

Table 5

Educational Attainment Compared

	Bachelor's Degree (%)	Master's Degree (%)	Beyond Master's (%)
General U. S. Population (2012)	31	8	3
All K-12 Teachers (2013)	41	46	9
K-12 Online Teachers (2008) Archambault Study	96	62	16
K-12 Online Teachers (2010) Dawley et al. Study	39	53	7
K-12 Online Teachers (2014) Larson Study	97	72	36
K-12 Online Teachers (2017) Van Vooren Study	43	57	0

Note: Adapted with permission from Larson (2014)

What is clear from the interviews is that online educators are presented with unique challenges when entering the field. Couple those challenges with the many forces shaping the online education movement, and a resilient and determined online education community is found. These forces acting upon the online education movement are split, but not evenly positive and negative. Although there is crossover in how those forces impact either the individual or the school, the individual feels more of the burden based on the transcripts. The challenge areas can be distilled down to four core themes: training, institution, professional, and personal. The intensity and frequency of these challenge areas vary depending on each online educator's makeup.

The results from this study support the literature contained in Chapter 2 in that online educators have a richer creative sense, a deeper need to make strong student connections and a wider knowledge of lesson modification skills (Chou, 2012; Kent, 2013; Larson, 2014; Lobera, 2010). Throughout the literature review, many examples of characteristics and competencies that online educators need to migrate from B-M were highlighted (Archambault, 2010; Collis, 1999; Lobera, 2010). The preponderant academic belief that traditionally trained teachers can also teach well in an online venue is a fallacy. Some candidates do make that transition well; others do not. The question remains how, when, and if pre-service educators should receive some type of digital pedagogy training imbedded with their pre-service course work (Apergi et al., 2015; Carr-Chellman, 2015).

After coding each subject's transcripts, a coding frequency column chart was compiled for each subject. When observing the chart, the number one slot for coding

frequency was shared between the themes of Training and Institution. Two subjects focused on the broad theme of Training, and five subjects centered on the Institution theme.

Figures 4-10 comprise the seven individual column charts. The first column in the chart represents the strongest code compiled during the interview. All subjects displayed a first column that was at least at 20% of the coded text or higher. When viewing the second column, all charts displayed a lower percentage, some significantly. The percentage drops ranged from 2% to 12%.

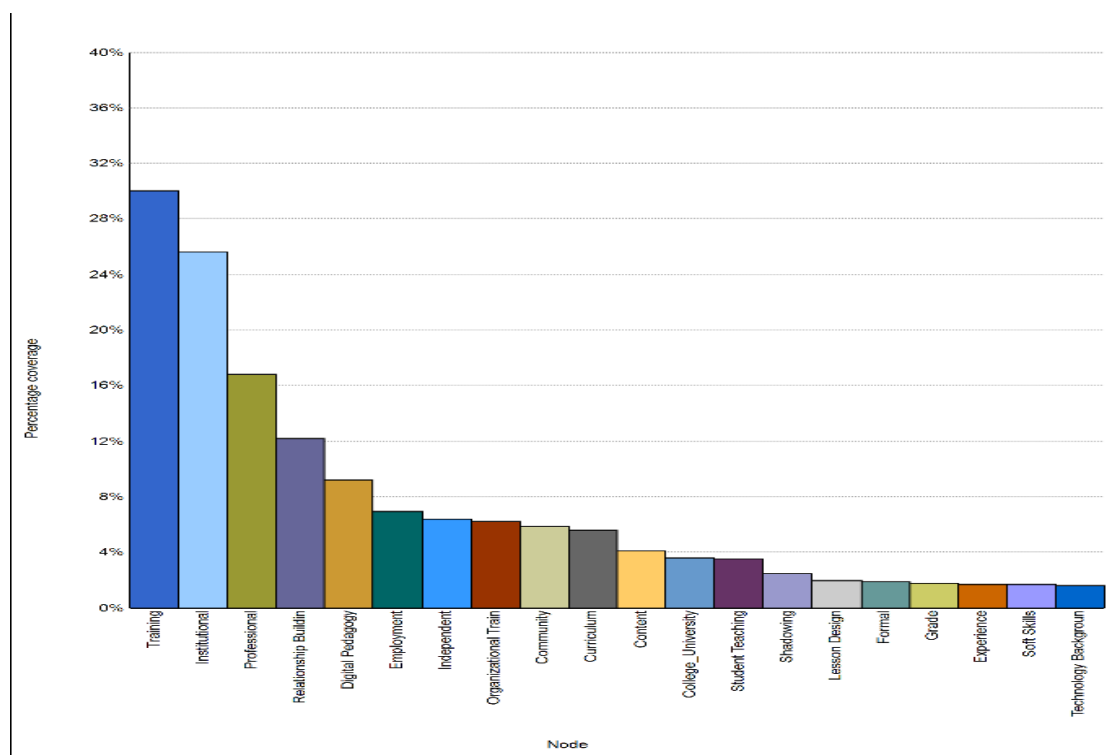


Figure 4. Alex: Coding frequency chart.

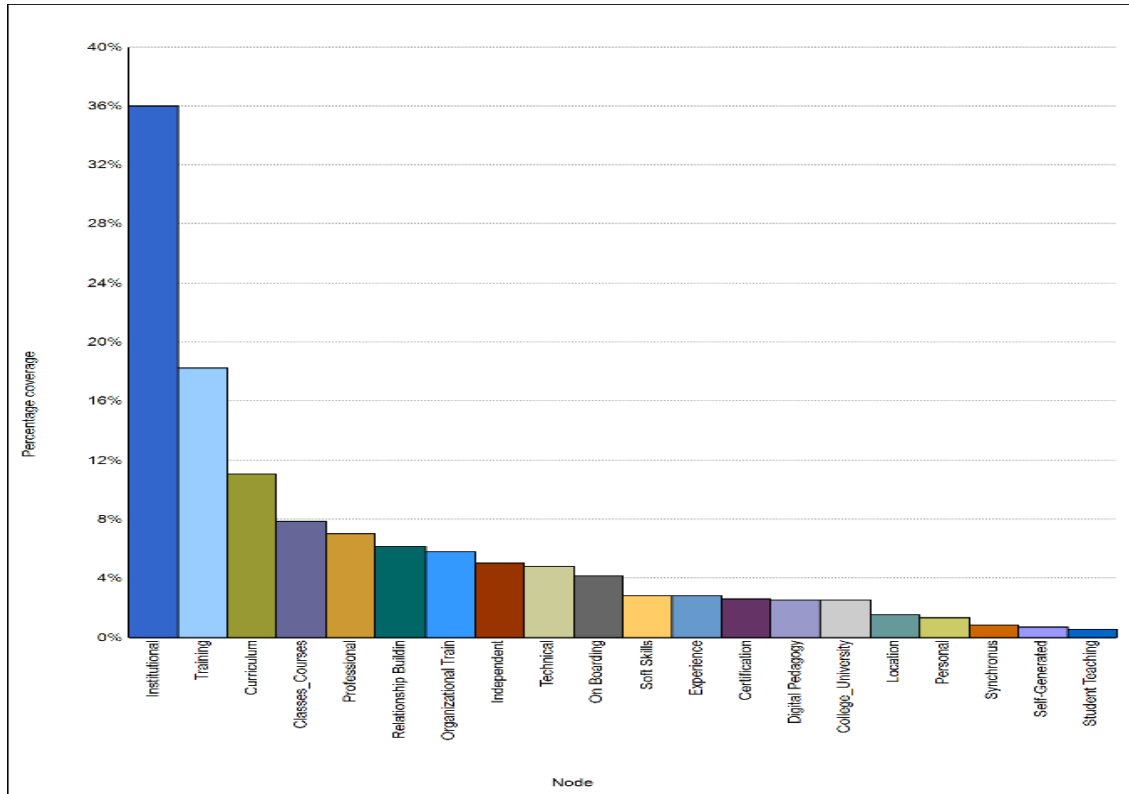


Figure 5. Maddie: Coding frequency chart.

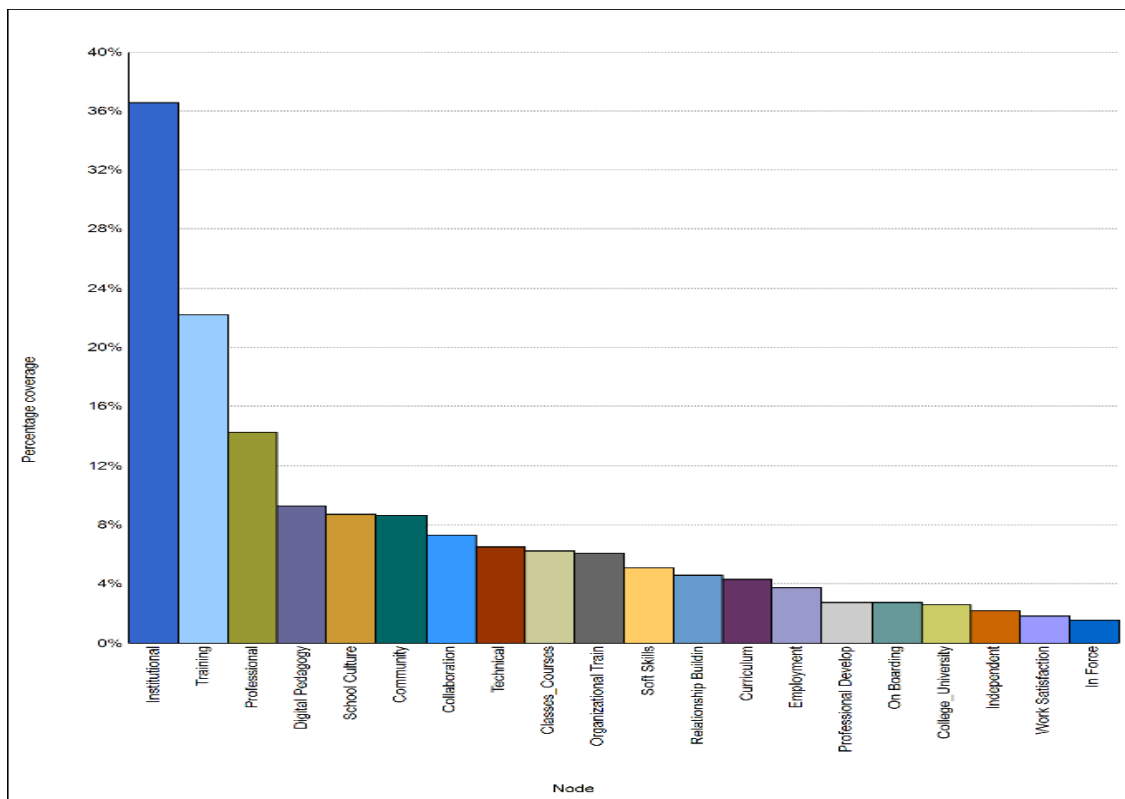


Figure 6. Gary: Coding frequency chart.

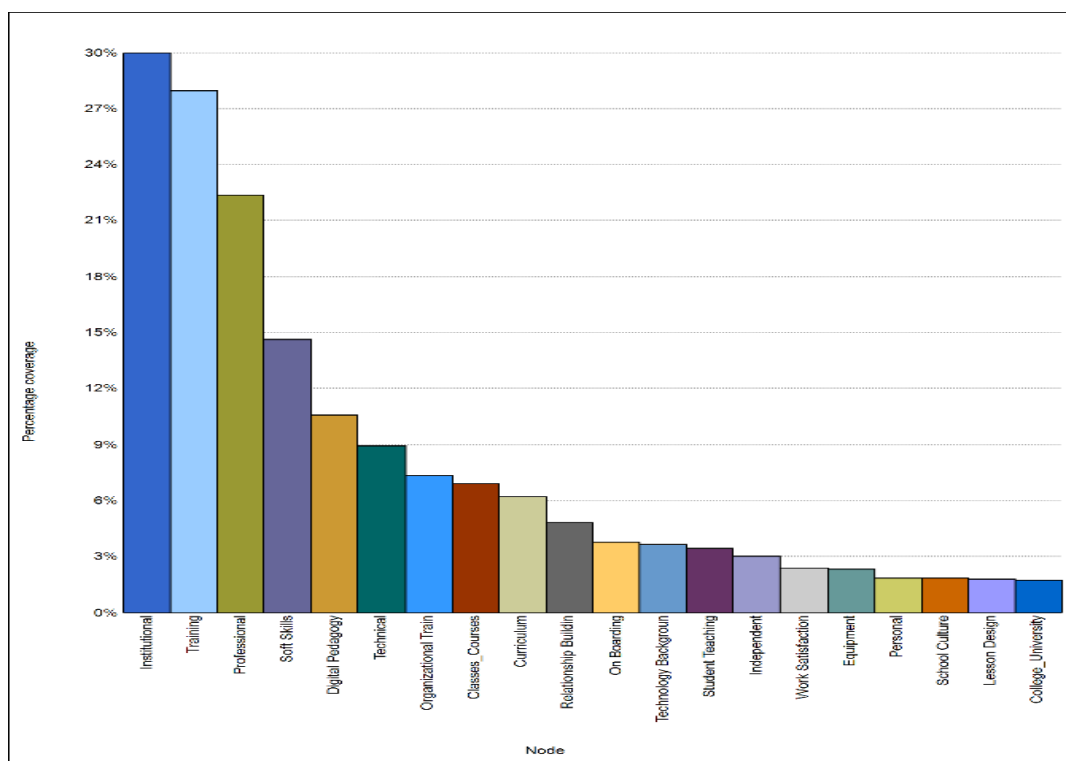


Figure 7. Lucy: Coding frequency chart.

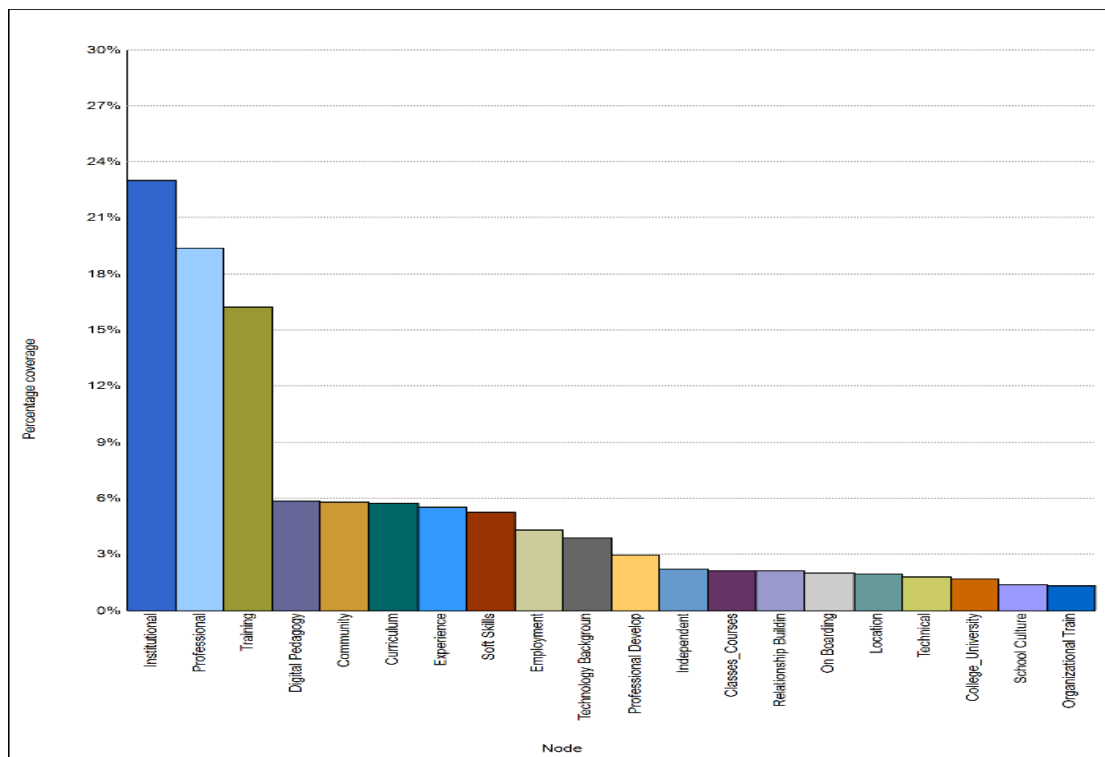


Figure 8. Edward: Coding frequency chart.

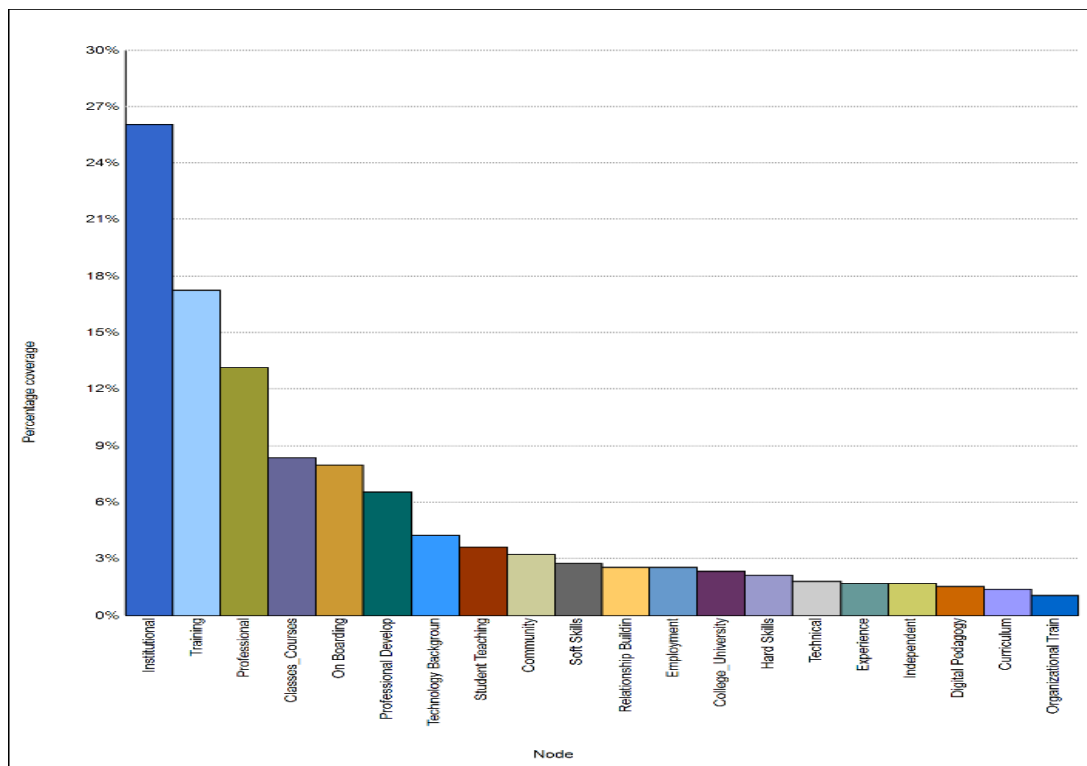


Figure 9. Cathy: Coding frequency chart.

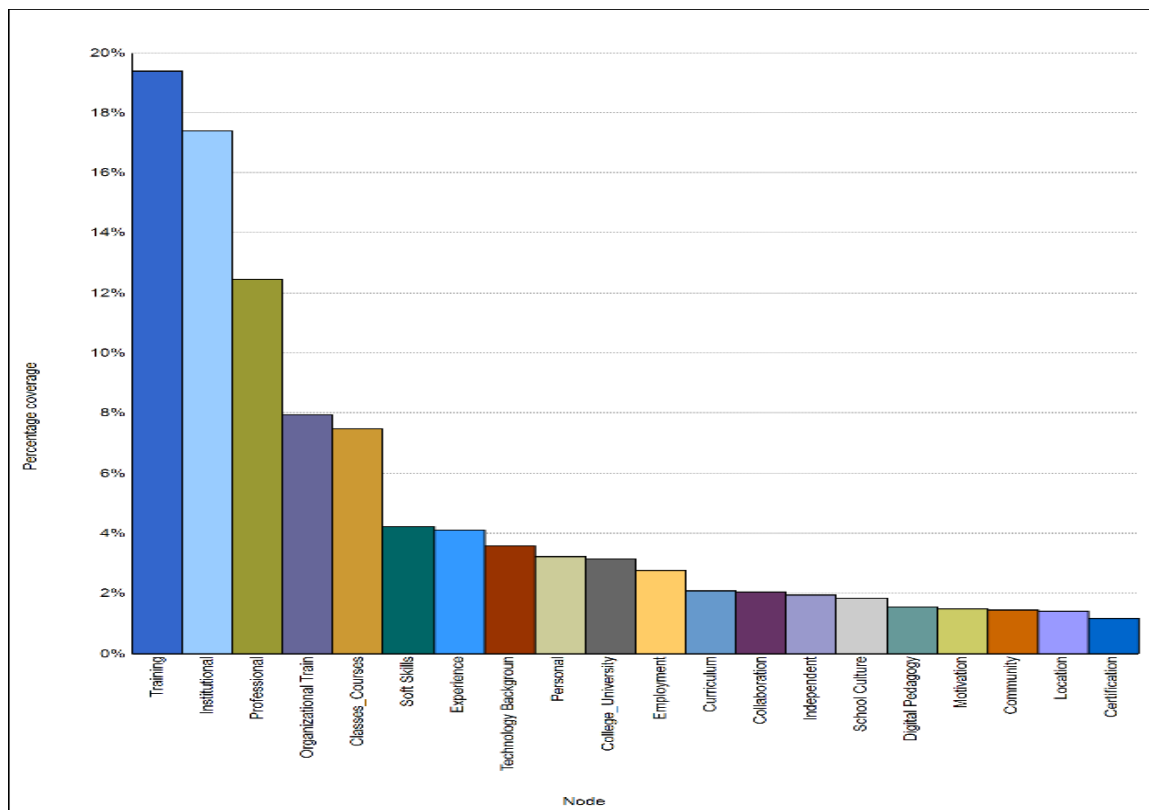


Figure 10. Chloe: Coding frequency chart.

Summary

This chapter displayed the results of the study's research on characteristics and competencies of effective online educators at three Pennsylvania cyber charter schools. The major themes germinated from the coding process were training, institution, professional, and personal. Tangentially related to the themes was the discovery that the cohort of subjects were 86% members of the Gen. Y generation or Millennials. Although not directly related to the research questions, it is worth noting, as Millennials are generally considered Digital Natives. A Digital Native is someone who, in their life, has not been subject to analog devices as a mainstay. The synthetization of the data allowed

the compilation of 10 common qualities that make up an effective online educator in Pennsylvania. Lastly, the research study has helped create a profile of the personal demographics, educational backgrounds, and teaching experiences of those currently educating students at a Pennsylvania cyber charter schools. The next chapter expands upon the researcher's interpretations, conclusions, and recommendations.

Chapter 5: Conclusions and Recommendations

Introduction

The purpose of this research study was to affirm or complicate the problem statement: What is the knowledge base needed to operate in the new and burgeoning field of K-12 online education? Furthermore, how is a pre-service or neophyte educator intended to gain this knowledge if the PDE has not provided a path to professional certification in digital pedagogy? To address this concern, in-the-field online educators were sought from the 14 cyber charter schools in Pennsylvania. The participants' knowledge of online education competencies was captured using a semi-structured interview protocol deployed in a one-on-one fashion. Along with the one-on-one interview, an artifact analysis of the participants' annual evaluation was engaged using an artifact analysis tool.

This research is critical in that it expands the knowledge base and brings to the surface the continued gap in pre-service teacher preparation for future online educators. Additionally, the question remains what path should state education departments take, what additional course work is needed for a certification, or is a true degree in the online education needed? The researcher was able to solicit subjects at all educational levels—elementary, middle, and high school—as well as examine common demographic areas. These areas were gender, professional experience level, education attainment, and content area.

Conclusions

This study has contributed to the field of research by investigating the research questions from a constructivist perspective and highlighting the experiential pre-service and in-the-field trainings for online educators. The intent and spirit was to find what, if any, skills, characteristics, and competencies from a traditional classroom training may have supported and transferred into the online instructional environment. The results from this study support the claim that there are unique skills needed to become an effective online educator.

The research questions are highlighted below.

Research Question 1. What are the characteristics and competencies of effective K-12 online educators in Pennsylvania cyber charter schools?

Research Question 2. What evidence displays skills that are specific to effective, K-12 online educators in Pennsylvania?

Currently the burden of onboarding neophyte educators and training them to teach in an online environment is borne by the school. The long-term effects of continuing to have the school fill these training gaps is two-fold. One, the pool of qualified online educators will continue to be artificially small, as digital pedagogical skills are not infused into pre-service curricula. Two, the up-time required to become confident as an online educator is reflected in the day-to-day interactions with students and fidelity of the content taught. Therefore, it is plausible to state the students may be receiving a lower quality of education as a result of the extended preparation time.

Research Question 1. What are the characteristics and competencies of effective online educators employed at a Pennsylvania cyber charter school? The barriers to becoming an effective online educator are not insurmountable. Many educators have accomplished this within the short tenure of cyber education. A prime example is Alex, he realized a need to “take” his own courses before deploying them to the students. The intent was to understand how his lessons came through the LMS for the student to see. This direct observation and immediate feedback is almost akin to the process of a formal observation. The data derived is used to make necessary changes so the student can learn. Though the self-observation technique Alex is employing, he is creating stronger authentic lessons, which in turn increase student achievement and have a positive impact on the annual observation conducted by his principal. What is continuing to impede global acceptance is the main question surrounding digital pedagogy. Is it in and of itself a standalone teaching methodology?

The data was gathered via a semi-structured interview protocol administered in a one-on-one modality. The subjects who participated brought forth a core set of characteristics and competencies that are displayed in Figure 3. Some examples are the ability to be flexible and to be a detailed listener. This flexibility pertains to when students will want to contact you for help, assignment submissions, etc. With regard to listening skills, a teacher needs to hone the ability to understand the students attending a course by either voicemails, sound bites, or other audible means.

Research Question 2. What evidence displays skills that are specific to effective, K-12 online educators in Pennsylvania? Research question two is intended to support the claim by the subject that they are an effective online educator. This is accomplished

by either voluntarily submitting their annual observation for a comprehensive review or recommendation from their administrator. Consistent with Research Question 1, when the reviews were conducted on the artifacts submitted, it became transparent that the neutral third party who conducted the observations highlighted many of the same characteristics and competencies brought forth during the interview process as well as specific skills. Research question two centers on teacher skills.

Barbour (2012) states that the skills needed to be an effective online educator are materially different than those taught in a traditional pre-service teacher training program. Continual and ongoing research is still needed to ascertain a more concrete understanding of the skill sets possessed by effective online educators. These educators whom use digital technology as the primary modality of delivering their respective content are hardening the path that is cyber education.

Figure 11 displays a mix of skills and results highlighted during the one-on-one interviews as well as the artifact analyses. Examining the figure, the skills gained as a result of digital pedagogy exposure during pre-service training, include the ability to modify standard lessons into those that can seamlessly integrate into the online environment, the knowledge and experience to compose meaningful and authentic assessments, and lastly the creative and inspirational qualities to make impactful connections with students across the digital education medium.

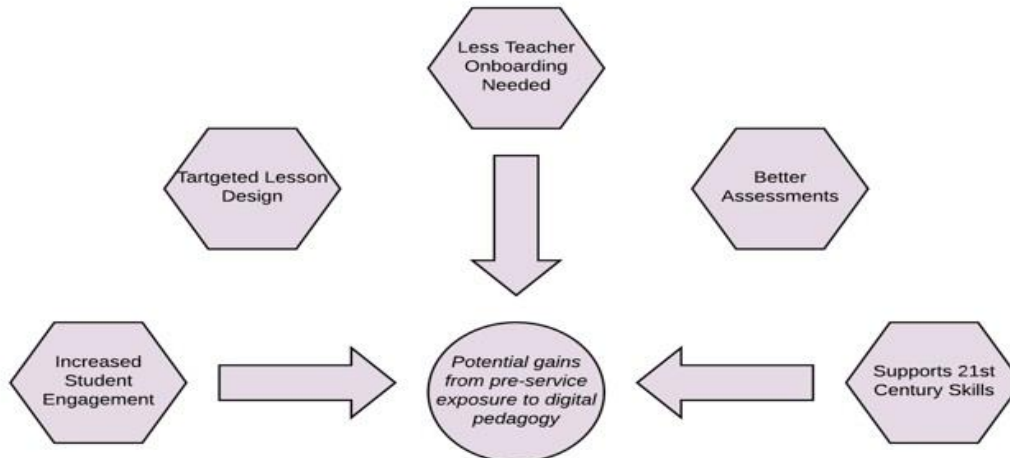


Figure 11. Digital pedagogy exposure.

Lastly, it became apparent that the overall deployment of the semi-structure interview questions need to be re-arranged for better conversation flow. As well, more time needs to be spent on the question verbiage to make them narrower and directed. If implemented these modifications would assist both the subject and researcher for time and continuity aspects.

Recommendations

This study intended to formally codify the characteristics and competencies that make up effective online educators at Pennsylvania cyber charter schools. This problem is a state issue in Pennsylvania, but it can be applied on a more global scale across the United States. The results gleaned were generally consistent with the attributes and suggestions pontificated in the Chapter 2 Literature Review.

Actionable Solutions for the Research Problem

Maeroff (2004) stated the infusion of technology in education has resulted in a shift whereby the educator is more of a facilitator. Just as the one room school house evolved into large school districts or the slide rule gave way to the iPad, the role of the educator and how they infuse and impart content has changed as well. The educational landscape is, and continues to change, as the classroom continues to be pierced by new educational technology tools and other instruments, tactics, and methodologies to increase student achievement. Although it seems those charged with charting the new course for education in Pennsylvania have forgotten one simple thing, the end user, the student. The student is the constant. It is nonsensical to continue to educate the same way that has been done the past 50-70 years.

There are currently competing forces in Pennsylvania attempting to coalesce and capture the education market place. These entities are traditional B-M, private/religious, charter, and cyber charter. The researcher postulates that in order to move forward, we must not fog the lens of keeping the student at the center of what key stakeholders, decisions makers, educational service providers, and politicians decide. Countless amounts of money, time, and energy is expended between these competing educational entities, when they should be working and supporting each other. This is especially true for the publicly funded schools of B-M and charter. Imagine what could be accomplished if both educational entities could co-exist in harmony?

It is essential, before any wholesale changes moving forward can be commenced in the Pennsylvania public school landscape, that a common ground with regards to funding equity, educational rights, and management efficacy are established. The

researcher is proposing an exciting new look at how public education can sustain itself moving forward. The initial solution is simple in idea but momentous in application. I will breakdown the actionable solutions in to two broad themes. Theme one is Actionable Solutions for Educational Decision Makers and Theme two is Related Solutions.

Actionable Solutions for Educational Decision Makers

The initial action will require a collaborative act of the Pennsylvania General Assembly (PGA), the sitting Governor at the time, and the Pennsylvania State Education Association (PSEA). The action will require four steps. Step one would seek a concession by the PSEA to accept all charters to migrate to equal status with traditional public schools with regarding funding but without a union and a collective bargaining agreement. Step two would require the PGA to amend Act 22 of 1997 and 2001 to require all charter schools to become overseen by the PDE's office of Charter Education. This amendment would eliminate the infighting over money, membership, and retention. Step three the Governor would need to sign this new amendment in to law. Step four contained inside that new law is a requirement that all educational leaders of charter school be PDE certified. The researcher realizes this is a gross over simplification that glosses over the many hours, people, and offices needed to make this solution possible.

The second action is to modify the current student teaching requirement placement from B-M placements preferred to a hybrid model. It should be noted the PDE has acquiesced to allowing colleges and universities to give that option to their respective pre-service student teacher candidates. To date no college or university is making this a mandatory requirement.

This hybrid model would consist of ½ of the placement at a B-M school and the balance of the placement at a cyber school. The intent is to give pre-service educators an opportunity to understand the skills needed to be an effective online educator and how these differ from a B-M setting (Larson, 2014). The PDE will play an active role in this solution in that they will need to modify their own requirements. This would not require any action by the PGA or the Governor. This action could potentially diminish the current perception and misconceptions of what it takes to be an online educator (Li, Q., & Atkins, M., 2005).

The third action would again require the PDE to modify their requirements for schools and the credit make up to receive a diploma. The modification would come specifically in the modality of the course delivery. Although, the number of and content frequency for graduation at a specific school are set by the individual school and approved by their respective board of directors, the PDE does have to approve the credit/graduation requirements. Therefore, the PDE can require that schools require students take a minimum of three courses in an online format. The spirit of this is to give the students exposure to online course work prior to entering college. Along with that, this requirement can help schools with staffing issues, enrollment issues, etc. More specifically, schools can partner together to assist in offering courses that historically have low enrollment if they offer them in a partnership format. Lastly, this exposure will allow students to potentially accelerate their learning path as these courses can be asynchronously managed. With the necessitation of mandatory online course work and attendance, the students may find a venue that encourages experimentation, collaboration,

and increased rigor providing a more authentic 21st century learning experience (Hadsell, 2012).

Related Solutions

Solution number one. As the popularity of cyber schooling in Pennsylvania continues to grow, so too does the demand for staff. Currently, cyber charters in Pennsylvania are waylaid by the lack of certified and qualified teacher candidates for their openings. It would be advantageous for the 14 cyber school organizations to coalesce their resources and create one online portal to advertise their respective employment opportunities. This joint effort could have the potential to reach a broader audience and further solidify that becoming an online educator is a viable and sustainable career path in the today's hyper competitive market. Along with the related benefit of spreading the recruitment costs across multiple organizations, these schools might be able to job share a staff member when they do not need a full-time person as well.

Solution number two. This solution requires that colleges and universities to create an online educator course path within their pre-service teaching. Even though the PDE does not have a full complete certification in digital pedagogy, but merely an online endorsement program. The skills needed to become an effective online educator do transcend traditional teacher preparation training. More specifically in the areas of lesson design and portability as well as instructional design (Larson, 2014). This training should also include those currently in the field as online educators as well. As the Archambault study from 2008 shared, less than 2% of the teachers entering the workforce previous to the studies publication, had any formal digital pedagogy training. Yet, when this study was replicated by Larson in 2014 six years later, that number had barley crested the 4%

mark. It is evident that pre-service training can and should contain a digital pedagogy component (Archambault, 2008; Larson 2014; Lobera, 2010).

Solution number three. This research study brings to the surface the critical need to infuse digital pedagogy into pre-service teacher preparation programs. Accomplishing this unilaterally is possible if support and guidance came from PDE stating such actions needed to happen within all pre-service education curricula. All pre-service educators can receive adequate exposure if they were to complete an educational technology requirement prior to earning their education degree. Greenway and Vanourek (2006) shared that online educators must have a minimum level of technology proficiency when entering the online education field.

Overall the chronic shortage of qualified online educators is the result of two contributing factors. The lack of formalized university pre-service exposure to digital pedagogy and the messaging that working for a cyber charter school produces an inferior product. Even if the soft approach of requiring observation completed at a cyber charter school before student teaching, is a step in the right direction. This could assist in lowering the onboarding time for newly hired online educators, as they would already be exposed to digital pedagogy (Archambault, 2010; Chou, 2012; Henderson & Bradley, 2008; Schwab, 2013). Consequently, then the candidate pool may expand with the increased digital pedagogy exposure

Further Research

Due to K-12 online education being categorized in its infancy stage, not only in Pennsylvania but across the country, this academic population is rich in other areas for further study. Four areas have emerged as potential research study extensions. These

recommended areas are based on this study's outcomes. It should be noted that these suggestions are in no particular order of importance.

Study extension number one. If possible, expand the study to include subjects from all of the 14 Pennsylvania Cyber Charter Schools. This research would help to not only strengthen the initial study's validity and reliability, but it would provide more data to use as evidence when soliciting potential changes to the PDE.

Study extension number two. Broaden the current study to include as many states as possible. Just as stated above, the broader audience would strengthen the validity and reliability. Beyond the validity and reliability claim, this study could also support the movement to coalesce around one set of standards for online education.

Study extension number three. Replace the teachers from the initial study with using school administrators as the subjects. Just as the teachers are being thrust into this new modality of learning, so are the administrators. They equally do not have pre-service training in how to successfully manage and lead an online school. Study the administrators would complete an almost 75% coverage rate of all those working in the academic realm in a Pennsylvania Cyber Charter School.

Study extension number four. Conduct a comparative study between teachers who have received pre-service training in digital pedagogy and those that do not from a student achievement and teacher effectiveness perspective. This data could either lend support or diminish the call for formalized digital pedagogy training. Furthermore, this data could also be used to suppress or support the claim that receiving and/or working in a cyber school is an inferior product.

Summary

The challenges of online instruction vacillate between small and large. Some of these challenges are not unique to online education, as all school entities have them. What is unique though is the resiliency that all involved with online education possess. To enter a branch of your chosen career field and realize that you already have a knowledge gap due to a lack of direct training is unthinkable. This conundrum is happening everyday within the state of Pennsylvania as the field of online education continues to grow exponentially.

This study helped build a picture of this training dilemma in Pennsylvania as well as highlight the attributes of those currently teaching in the field. Those charged with oversight of educational activities at the state level have a better understanding of the online education landscape, where the training gaps are, and what vital characteristics and competencies are needed to become an effective online educator.

This critical information and data were collected from seven one-on-one interviews and a comprehensive artifact review. The interview questions centered on two broad areas: demographics and preparation levels of K-12 online educators in Pennsylvania. The data pattern that emerged showed a similar profile of a candidate who enters the field of online education as well as other demographic characteristics like age and educational attainment.

The data harvested displayed shared common characteristics and competencies amongst the subjects. For example, they all believe the student/teacher relationship aspect is paramount in being successful as an online educator. Furthermore, flexibility

and a solid foundation in educational technology were also deemed a necessary demeanor and skillset.

A common theme amongst all the subjects was the lack of formalized pre-service digital pedagogy exposure. Consequently, this gap was addressed by the specific school employing a comprehensive onboard process. Most of the subjects credit their colleagues as a secondary source to the initial training for guidance and support in the field of online education.

The online education environment has shifted the traditional teaching paradigm from the teacher imparting and directing the knowledge to that of a facilitator. This paradigm shift has also forced an expansion of the parent role from passive to fully involved. Coupled with those changes, students in an online setting have more flexibility to create custom educational paths. This change is more prevalent in the online education environment. B-M colleagues do not have the same latitude and flexibility due to the confines of a traditional school atmosphere.

Ultimately this study shows that those involved in online education possess a variety of skills and abilities to largely embrace the burgeoning field that is online education in Pennsylvania. Even though this field has roughly a decade of time in place, it is still largely an unknown and undefined challenge. Further work is needed to define and empirically validate what are the best practices, characteristics and competencies, and learning outcomes needed to assure students will be able to access their education. When this foundational information is codified and honed, the installation of educational and pre-service training programs can be established globally at the college and

university level. This, in turn, will validate and solidify the path to becoming an effective online educator in Pennsylvania.

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Appendix A: Cyber School Student Teaching Competencies

Cyber School Student Teaching Competencies Introduction

The Pennsylvania Department of Education (PDE) has developed a general set of student teaching competencies that afford a student teacher the opportunity to complete no greater than 50% of their student teaching experience in a cyber-school.

Criteria for Cyber Schools to Host Student Teaching Candidates

Placement of candidates in a cyber-school for part of a student teaching experience is an option program providers may choose for their candidates. Student teaching in a cyber-school setting cannot exceed 50% of the student teaching placement. Participating cyber schools must meet specific criteria to ensure the most comprehensive learning environment for the candidate. The following standards must be used to determine an acceptable placement site:

1. Candidates are placed in a public cyber school that serves a diverse student population.
2. Candidates are placed in sites that allow for a broad set of interactions with students.
3. Candidates are placed in sites that allow a broad set of interactions with PA certified and highly qualified teachers and administrators serving as qualified site mentors.
4. Candidates need to meet at least 50% of the competencies during the cyber school placement for the placement to be successful.
5. The cyber setting is in an office providing a professional work area, not a home.
6. The curriculum delivered is dynamic, indicating a high level of student engagement, and is approved by a school district or other body with the authority for such approval.
7. Candidates are provided the opportunity to alter the instruction and create lesson plans and assessments to fit the needs of the learner.
8. Candidates are provided the opportunity to create an instructional plan as determined by the teacher education program provider.
9. Candidates are able to work with diverse learners.
10. Candidates are given the opportunity to demonstrate the ability to create of a positive learning environment through interactions with students in the cyber setting.
11. Candidates are given the opportunity to interact with students and families in real time.
12. Candidates are able to conduct synchronous instruction.

13. Candidates are provided opportunities to participate in any orientation, professional development, and meetings required of the cyber school faculty.

14. Candidates are provided the opportunity to work with the families of students and participate in any training the Cyber School offers to families and professional staff.

15. University supervision is analogous to the supervision and observation provided to candidates in traditional, on-the-ground settings.

16. Guidelines for supervision include all components of supervision both on-site and electronic including opportunities to provide feedback at the time of planning as well as during actual instruction.

17. A cyber school permits the program provides access to the online instruction for the purpose of monitoring the delivery of instruction.

CANDIDATE COMPETENCIES

Cyber School student teaching competencies are applicable across all Instructional I certifications. It is expected that program providers will follow program guidelines to assure appropriate conditions for placement of candidates for student teaching in each program of study. Candidates should have the opportunity to gain experiences that allow them to practice, develop and demonstrate competencies and to address the broad set of issues, knowledge and competencies that are relevant to teaching and learning. Program candidates should be provided with a broad set of meaningful interactions with Pre-K-12 students and professional staff, as well as willing and qualified mentors. Candidates should be provided with frequent program provider supervision, and collaborative partnerships between the program provider and the local education agency.

Cyber School Student teaching establishes that eligible individuals will demonstrate competency related to in the following key domains:

1. Planning and Preparation;
2. Virtual Classroom Environment;
3. Instructional Delivery;
4. Professional Conduct;
5. Assessment; and
6. Knowledge of Diverse Learners.

Competency Domain

A. Planning and Preparation

Requirement Can Be Met:

The candidate:

1. Links content to related research-based pedagogy based on sound educational psychology principles in short- and long-range instructional plans.
2. Constructs all instructional plans to align with Pennsylvania Pre-K-12 Academic Standards.
3. Plans instruction that is responsive to the age and/or related characteristics of their students.
4. Uses multiple forms of formative and summative assessments to adapt learning goals that match individual student needs.
5. Plans short-and long range instruction using appropriate resources, materials, technology and activities to engage students in meaningful learning, based on their instructional goals.
6. Assesses existing resources and creates and/or accesses additional instructional resources appropriate for learners under their responsibility.

Appendix B: Certificates in Pennsylvania – Types and Codes

Candidates for certification in Pennsylvania must identify the certificate type and subject area for which they plan to apply before entering the online application system, the Teacher Information Management System (TIMS). The various certificate types and subject areas currently offered by Pennsylvania are listed below.

For educators holding a Pennsylvania certificate and applying for certification in another state or for other state departments of education, the National Association of State Directors of Teacher Education and Certification (NASDTEC) Stages of Licensure for each certificate type is listed at the bottom of this page. To understand the NASDTEC Stages of Licensure, refer to NASDTEC information on this site.

Instructional Certificates – Type Code 61

The instructional certificate is issued to a person whose primary responsibility shall be direct contact with learners in teaching-learning situations.

Subject Code	Subject Areas
1200	Agriculture PK-12
1405	Art Education PK-12
1603	Business, Computer and Information Technology PK-12
8825	Citizenship Education 7-12
3200	Communications 7-12
2361	Cooperative Education 7-12
2840	Early Childhood Education N-3 (discontinued 8/31/2013)
2810	Elementary Education K-6 (discontinued 8/31/2013)
3230	English 7-12
4820	Environmental Education PK-12
5600	Family and Consumer Science PK-12
See table below	Foreign/World Languages PK-12 (see following table for areas and subject codes)
3100 – 09	Grades 4-8 English Language Arts
3100 – 01	Grades 4-8 Mathematics
3100 – 05	Grades 4-8 Science
3100 – 08	Grades 4-8 Social Studies
2825	Grades Pre-Kindergarten – 4
4810	Health Education PK-12
4805	Health and Physical Education PK-12
6420	Library Science PK-12
1666	Marketing (Distributive) Education PK-12
6800	Mathematics 7-12
2870	Middle Level Citizenship Ed 6-9 (discontinued 8/31/2013)
2850	Middle Level English 6-9 (discontinued 8/31/2013)
2860	Middle Level Mathematics 6-9 (discontinued 8/31/2013)
2880	Middle Level Science 6-9 (discontinued 8/31/2013)
7205	Music Education PK-12

7650	Reading Specialist PK-12
5215	Safety/Driver Education 7-12
8405	Science – Biology 7-12
8420	Science – Chemistry 7-12
8440	Science – Earth and Space 7-12
8450	Science – General Science 7-12
8470	Science – Physics 7-12
8865	Social Science 7-12
8875	Social Studies 7-12
9226	Special Education PK-8 (content area certificate required for issuance)
9227	Special Education 7-12 (content area certificate required for issuance)
9225	Special Education PK-12 (discontinued 8/31/2013)
9205	Special Education – Hearing Impaired PK-12
9265	Special Education – Speech/Language Impaired PK-12
9290	Special Education – Visually Impaired PK-12
6075	Technology Education PK-12
2600	Vocational Instruction 7-12

**Appendix C: Survey of Pennsylvania Cyber Charter Schools Demographic Data
– Fall 2016**

School Name	Year Opened	Enrollment	Curriculum	Staffing Model
21 st Century Cyber CS	2001	1000	Self-Created	Office Based
Achievement House CS	2004	930	Blended	Office Based
Agora Cyber CS	2005	9,490	Purchased	Home Office
ASPIRA Cyber CS	2010	150	Self-Created	Office Based
Central PA Digital Learning Foundation CS	2002	120	Purchased	Office Based
Commonwealth Charter Academy	2016	5,550	Self-Created	Office Based
ACT Academy Cyber CS	2012	157	Purchased	Office Based
Esperanza Cyber CS	2012	152	Purchased	Office Based
Pennsylvania Cyber CS	2000	10,434	Purchased	Home Office
Pennsylvania Distance Learning CS	2004	509	Purchased	Office Based
Pennsylvania Leadership CS	2004	2,428	Self-Created	Office Based
Pennsylvania Virtual CS	2001	2,500	Purchased	Office Based
Reach CS	2016	600	Purchased	Office Based
Susq-Cyber CS	1998	153	Self-Created	Office Based

Appendix D: State by State Listing of Online Educator Credentials

State Name	Credential Type	Educational Level	Website Address
Alabama	N/A		https://www.alsde.edu/sec/ec/Pages/home.aspx
Alaska	N/A		https://education.alaska.gov/TeacherCertification/
Arizona	N/A		http://www.azed.gov/educator-certification/certificate-requirement/teaching-certificate/
Arkansas	N/A		http://www.arkansased.gov/divisions/human-resources-educator-effectiveness-and-licensure/educator-licensure-unit/add-licensure-area-to-license/additional-licensure-plans-alp
California	N/A		http://www.ctc.ca.gov/credentials/req-teaching.html#DS
Colorado	N/A		https://www.cde.state.co.us/cdeprof/licensure_authorization_landing
Connecticut	N/A		http://www.sde.ct.gov/sde/cwp/view.asp?a=2613&q=321226
Delaware	N/A		http://deeds.doe.k12.de.us/default.aspx
Florida	N/A		http://www.fldoe.org/teaching/certification/certificate-subjects/
Georgia	N/A		http://www.gapsc.com/Certification/CertFieldsAndEndorsements/teaching.aspx
Hawaii	N/A		http://www.htsb.org/licensing-permits/licensure-tests/
Idaho	Add on endorsement	All	http://www.sde.idaho.gov/cert-psc/shared/forms/B14-Online-Endorsement.doc
Illinois	N/A		http://www.isbe.state.il.us/licensure/requirements/endsmt_struct.pdf
Indiana	N/A		http://www.doe.in.gov/sites/default/files/licensing/2016-assignment-codes-all-jan-26-2016.pdf
Iowa	Programmin g	Not a certification	https://www.educateiowa.gov/pk-12/online-learning
Kansas	N/A		http://www.ksde.org/Agency/Division-of-Learning-Services/Teacher-Licensure-and-Accreditation/Licensure/License-Application
Kentucky	N/A		http://www.kyepsb.net/certification/certlist.asp
Louisiana	N/A		https://www.teachlouisiana.net/Teachers.aspx?PageID=650
Maine	N/A		http://www.maine.gov/doe/cert/initial/requirements.html

Maryland	N/A		http://www.marylandpublicschools.org/about/Pages/DEE/Certification/Certification-Areas.aspx
Massachusetts	N/A		https://gateway.edu.state.ma.us/elar/licensurehelp/LicenseRequirementsCriteriaPageControl.ser
Michigan	N/A		http://www.michigan.gov/mde/0,4615,7-140-5683_14795-390337--,00.html
Minnesota	N/A		http://education.state.mn.us/MDE/Lic/Apply/index.htm
Mississippi	N/A		http://www.mde.k12.ms.us/docs/educator-licensure/licensure-guidelines-k12.pdf?sfvrsn=0
Missouri	N/A		https://dese.mo.gov/educator-quality/certification/already-certified-teacher
Montana	N/A		http://opi.mt.gov/cert/FAQ/faq.html#endorsement
Nebraska	N/A		https://dc2.education.ne.gov/tc_interactive_teaching2/TeachingInitialCertificate.aspx
Nevada	N/A		http://www.doe.nv.gov/Educator_Licensure/Specific_Areas_of_Licensure/
New Hampshire	N/A		http://education.nh.gov/certification/cred_forms.htm
New Jersey	N/A		http://www.state.nj.us/cgi-bin/education/license/endorsement.pl?string=999&maxhits=1000&field=2
New Mexico	N/A		http://www.ped.state.nm.us/Licensure/2010/index.html
New York	N/A		http://eservices.nysed.gov/teach/certhelp/CertRequirementHelp.do
North Carolina	N/A		http://www.dpi.state.nc.us/licensure/steps/
North Dakota	N/A		http://www.nd.gov/espblicensure/docs/LicenseCodeManual.pdf
Ohio	N/A		http://education.ohio.gov/getattachment/Topics/Teaching/Educator-Licensure/Apply-for-Certificate-License/Teaching-Fields-Codes.pdf.aspx
Oklahoma	N/A		http://sde.ok.gov/sde/traditional-path-oklahoma-teacher-certification
Oregon	N/A		http://www.oregon.gov/tspc/Pages/index.aspx
Pennsylvania	Add on endorsement	All	http://www.education.pa.gov/Documents/Teachers-Administrators/Certifications/Pennsylvania%20Certification/Certificates%20in%20Pennsylvania%20-%20Types%20and%20Codes.pdf
Rhode Island	N/A		http://www.ride.ri.gov/Portals/0/Uploads/Documents/Teachers-and-Administrators-Excellent-

			Educators/Educator-Certification/Cert-main-page/RI_Required_Certification_Tests.pdf
South Carolina	Certification	All	http://ed.sc.gov/educators/certification/advancing-certification/adding-certificate-areas/academic-certification-areas-issued/
South Dakota	Endorsement	All	http://doe.sd.gov/oatq/documents/Praxis16b.pdf
Tennessee	N/A		http://www.tn.gov/education/topic/endorsement-code-listings
Texas	N/A		http://tea.texas.gov/WorkArea/DownloadAsset.aspx?id=51539610646
Utah	N/A		http://www.schools.utah.gov/cert/Endorsements.aspx
Vermont	Certification	Secondary	http://education.vermont.gov/sites/aoe/files/documents/edu-educator-quality-endorsement-codes.pdf
Washington	N/A		http://www.k12.wa.us/certification/teachermain.aspx
West Virginia	N/A		http://wvde.state.wv.us/certification/forms/documents/AdditionalEndorsementViaPRAXISExameffectiveSeptember12016.pdf
Wisconsin	N/A		http://dpi.wi.gov/tepd/licensing/types/teaching
Wyoming	N/A		http://ptsb.state.wy.us/Licensure/BecomingLicensed/tabid/65/Default.aspx

Appendix E: Endorsements – Type Code 58

An Endorsement is a credential attained through an approved program. It is a minimum of 12 credits and is available in new and emerging areas where formal certification does not exist. The Program Endorsement is intended to improve a teacher's skills in dealing with complex classroom settings. These endorsements are added to existing Level I or Level II certificates but are not required to perform service in the endorsed areas

Subject Code	Area/Field
1180	Autism Spectrum Disorders PK-12
1191	Creative Movement PK-12
1189	Gifted PK-12
1182	Instructional Coach PK-12
1183	Mathematics Coach PK-12
1184	Online Instruction Program PK-12
1181	Science, Technology, Engineering & Math (STEM) PK-12
1190	Theatre PK-12

**Appendix F: Survey of Pennsylvania Cyber Charter Schools Demographic Data
– Fall 2015**

School Name	# of Teachers in SY 13-14	# of Students in SY 13-14	# of Open Positions in SY 14-15
21 st Century Cyber CS	41	850	15
Achievement House CS	36	930	20
* ACT Academy Cyber CS	6	157	0
Agora Cyber CS	266	9490	100+
ASPIRA Cyber CS	6	150	0
Central PA Digital Learning Foundation CS	28	120	0
** Commonwealth Connections Academy CS	30	5550	20
Education Plus Academy Cyber CS	30	500	0
Esperzana Cyber CS	13	152	0
Pennsylvania Cyber CS	204	10434	100+
Pennsylvania Distance Learning CS	31	509	10
Pennsylvania Leadership Charter School	100	2428	35
Pennsylvania Virtual CS	130	4000	45
Susq-Cyber CS	10	153	0

NOTE: # of Teachers and # of Students data listed is verified by the school's annual reports to the Pennsylvania Department of Education. # of open positions is an approximation based on a survey of the past two months publicly available job posting advertisements.

* Closed as of 12/2/15

** Commonwealth Connections Academy has terminated its operating agreement with K12, Inc. As of 7/1/16 they are self-managing themselves. As a result of the separation Reach Cyber Charter School was started by K12, Inc. opening their doors for SY 16-17

Appendix G: Consent

Name: Scott E. Van Vooren
Institution: Drexel University
Department: School of Education
Address: 3141 Chestnut Street
City/State/Zip: Philadelphia, PA 19104

Dear Educator,

I am a doctoral student from Drexel University writing my dissertation titled *The K-12 Online Teaching Dynamic: A study of educators at multiple cyber charter schools in Pennsylvania*. My research dissertation seeks to bring to the surface the characteristics and qualities that make up an effective online educator in Pennsylvania. Structured interviews will be conducted outside of the school day to allow for greater privacy and security of the interview sessions. Along with the structured interview, I will be conducting an artifact review. This artifact review will commence using voluntarily submitted annual teacher effectiveness evaluation documents. These documents will be reviewed using an artifact review tool. The intent of the comprehensive artifact review is further strengthen or complicate the research problem statement.

It is critical to note that interviews and artifact reviews will be anonymous, confidential, and voluntary. The researcher will assign a pseudonym to each interested volunteer subject. All cyber teachers are invited and encouraged to participate. If you agree to participate, this informed consent form will need to be physically signed and returned to the researcher. This consent will be documented.

I am soliciting your participation under the following conditions:

- I will use a structured interview protocol to assist me in keeping questioning events consistent.
- I will record the interviews electronically for recording keeping and data harvesting purposes.
- Interviews will be completed via the Zoom web conferencing tool.
- I will send a copy of my completed research study to your attention upon completion of the study.
- If you express interest more detailed information will follow explaining your rights, protections and other procedural issues.

My dissertation committee chair is Dr. Allen C. Grant, Ph.D., who can be reached at 215-895-6232 or acg48@drexel.edu. The Drexel University IRB Committee Chair can be contacted at 215-762-3944 or hrpp@drexel.edu.

This study has been reviewed and approved by Drexel University's Institutional Review Board (IRB). The IRB has determined this study meets the ethical obligations required by federal law and University policies.

Thank you for your consideration to participate in this study. Please indicate by check marking either selection along with your signature and date.

{ } I am willing to participate in the structured interview session and artifact review.

{ } I am NOT willing to participate in the structured interview session and artifact review.

Signature

Date

Please replying to me through e-mail: sev34@drexel.edu and sending a signed scanned copy of your consent disclosure.

Sincerely,



Scott E. Van Vooren
Doctoral Candidate – Drexel University

Appendix H: Interview Protocol

Interview Type: One-on-One

Study: The K-12 Online Teaching Dynamic: A study of Educators at multiple cyber charters schools in Pennsylvania

Time of Interview:

Date:

Place:

Interviewer: Mr. Scott E. Van Vooren

Interviewee:

Position of interviewee:

Study Description: This multi-site ethnographic and artifact study examines and explores the unique competencies and characteristics of K-12 online educators in Pennsylvania through one-on-one in depth interviews and a comprehensive teacher evaluation document review.

I employ a web conferencing tool as platform to conduct the virtual interview as well as digitally recording the audio from this interview. The audio recording will provide the platform to transcribing the interview. I will provide you with a copy of the transcription to check for accuracy and make clarifications if necessary.

Questions

The questions are grouped into broad based themes. These themes are intended to guide the interviewee by expanding up and developing the story that is their respective journey as a K-12 online educator in Pennsylvania. The Research Questions below have guided the development of the interview protocol.

Research Questions:

1. What are the characteristics and competencies of effective K-12 online educators in Pennsylvania cyber charter schools?

2. What evidence displays skills that are specific to effective K-12 online educators in Pennsylvania.

Theme 1 - Personal Demographics:

- 1.1 – What is your gender?
- 1.2 – What is your race?
- 1.3 – What is your age?
- 1.4 – What is your relationship status?

Theme 2 - Educational Background:

- 2.1 – What Bachelor’s degree do you hold?
 - 2.1.1 – What was your major or minor if any?
- 2.2 – What Master’s degree do you hold?
 - 2.2.1 – What was your major or minor if any?
- 2.3 – Do you hold a teaching certificate?
- 2.4 – What year did you obtain your initial teaching certificate?
- 2.5 – What state granted your initial teaching certificate?

Theme 3 - Preservice Training:

- 3.1 – What college or university did you obtain your initial teaching certification from?
 - 3.1.1 – What year was the certification obtained in?
- 3.2 – In what state is the college or university located?
- 3.3 – Did your pre-service teacher preparation program include any digital pedagogy exposure (e.g. assignments, assessments, content delivery, field experience, etc.)?
 - 3.3.1 – If so, how as the content regarding K-12 online teaching included as a part of your pre-service coursework?
- 3.4 – If your pre-service field work included any online components, please describe the nature and extent (e.g., overall duration, hours per day, location, specific activities, and responsibilities, etc.)

Theme 4 - Current Online Teaching Assignment:

- 4.1 – Before your current teaching assignment did you teach students in an online format?
- 4.2 – Are you a full-time or part-time teacher?
- 4.3 – What is your currently teaching load?
 - 4.3.1 – How many preps do you have?
- 4.4 – Where are you domiciled (e.g., home, office, or a hybrid arrangement?)
- 4.5 – How much of your instruction takes place online (percentage answer)?
- 4.6 – What learning management system is your school currently using?
- 4.7 – Considering your classes, who is the primary author of the content?
- 4.8 – How many years have you been employed as an online educator?
 - 4.8.1 – Did you teach in a brick and mortar school prior to this assignment?
 - 4.8.2 – Have you taught in an independent or a religious centered school?

- 4.9 – What is the grade makeup of the school you are current employed at?
- 4.10 – Describe the career path that led you to teaching online?
 - 4.10.1 – What were the dominate factors that influenced your decision to teach online?
- 4.11 – In your professional opinion what are the most important attributes a K-12 online educator must have to be effective?
- 4.12 – Describe how you were prepared or how you prepared yourself to teach online?
 - 4.12.1 – What training or preparation did you find to be the most helpful in assisting you to become an online educator?
- 4.13 – Based on your personal experience teaching online, what elements of training would be the most valuable in preparing new online educators?

Theme 5 - Technological Skills:

- 5.1 – What type of operating system does your school use, (iOS, Windows, or Android?)
- 5.2 – What type of operating system do you use at home, (iOS, Windows, or Android?)
- 5.3 – In your pre-service training, was their specific course dedicated to educational technology?
 - 5.3.1 – If so, please explain?
- 5.4 – How does your school provide opportunities for the staff to remain current on technology trends and advancements?
- 5.5 – Describe the onboarding process to start the transformation of newly hired staff into online educators.

Appendix I: Artifact Summary Form**Name of Artifact:****Artifact Number (Assigned by Researcher):****Date Received:****Date of Artifact:**

Page Number	Key Word(s) or Trends	Comments or Relationship to Research Question(s)

Appendix J: Research Subject Content Area & Grade Level

SUBJECT NAME	SCHOOL NAME	GRADE LEVEL	CONTENT AREA
Cathy	Virtual Prep	3 rd Grade	All
Maddie	Cyber Academy	Intermediate	All
Chloe	Cyber Academy	9 th Grade	Social Studies
Gary	Online Institute	10 th Grade	Math
Lucy	Online Institute	8 th /9 th Grade	Social Studies
Edward	Virtual Prep	All Middle and High School Grades	Math
Alex	Online Institute	11 th Grade	Math