Virtual education, once a niche educational option, has grown in popularity throughout the US (and the world) post-COVID-19. However, the lack of systems and structures in place to implement virtual learning environments during the pandemic left many questioning the validity of virtual education. Now on the other side of the pandemic, NC virtual academies are on the rise, and in response, the NC Legislature sought out recommendations for successful implementation from key virtual learning stakeholders published in "Study Group Results: Working Group on Virtual Academies" (NCDPI, 2022). Virtual school principals' voices are missing from those recommendations, and their voices should be considered.

This qualitative study explores virtual school principals' perceptions of their roles and practices in their schools and how they compare to the NCDPI recommendations. Based on their responses, I ultimately hoped to identify structures NC virtual school principals believe are necessary for designing, operating, and implementing effective virtual learning environments. I gathered data from five current virtual school principals through two semi-structured interviews and utilized the E-Learning Systems Framework proposed by Aparicio et al. (2016) as a guide for successful implementation. I found that the e-learning ecosystem within current virtual schools is out of balance, favoring people over technology and services. This imbalance is also echoed in policy recommendations, indicating a need to rethink current practices as a whole. Ultimately, more support and structure are needed to aid principals in technology and services in order to bring the ecosystem in balance. The implications of this research identify the necessity to define virtual schools as separate but equal educational options with specific requirements for

systems and structures needed within a virtual learning environment and create robust training

programs for virtual principals who must shoulder the weight of successful implementation.

   Keywords: education, educational technology, e-learning systems, principal, virtual

education, virtual learning

EDUCATING THE VIRTUAL WAY: NC K-12 VIRTUAL PRINCIPALS' PERCEPTIONS OF

SUCCESSFUL IMPLEMENTATION

by

Mary Elizabeth Daniels

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Approved by

_____
Dr. Tiffanie Lewis-Durham
Committee Chair

DEDICATION

I would like to dedicate this dissertation to the virtual school principals of NC. You are making a difference and leading the charge to change the landscape of education each and every day, and the findings of this research prove just how hard you have to work to make a difference. Keep fighting.

APPROVAL PAGE

This dissertation, written by MARY ELIZABETH DANIELS, has been approved by the

following committee of the Faculty of The Graduate School at The University of North Carolina

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April 22, 2024
Date of Acceptance by Committee

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Date of Final Oral Examination

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When I was a child, my grandfather (Pop) told me that I should pursue as much education as possible because it's the only thing no one can ever take away from you. From that moment, I knew I was going to push for the most education I could possibly achieve. Without his wise words, I would never have undertaken this endeavor. Thanks, Pop.

Although my Pop sparked the idea, I had so much support and encouragement along the way to keep me going. To my husband Brian, family, and friends, thank you for supporting me on the long class nights and the many weekends I sequestered myself to write. Three years of weekly trips to Greensboro wasn't easy for me, but it also wasn't easy for everyone in my home; however, I always knew I had your support. Thank you just doesn't sound like enough. To my boys, Mason and Miles, thank you for being my cheerleaders throughout this journey, and yes, this means you have to call me Dr. Mom now. To my colleagues at Heritage High School–Scott, Mitzie, Eric, Levi, and Erica– thank you for covering duties and dealing with my absences so I could finish this dissertation on my slightly unrealistic (but achieved!) timeline. To my supportive cohort, and most especially my coffee buddy and peer reviewer Dr. Randy Hunt, thank you for pushing me to keep going even when I felt like I couldn't write one more sentence.

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CHAPTER I: INTRODUCTION

The U.S. educational system, governed by state law and managed by elected state officials, has seen many technological advancements that have been used over time to enhance learning. Despite these peripheral changes, the structure and purpose of schools, and the educational system as a whole have changed very little. In two articles separated by 10 years, Steven Wolk challenges the structure and purpose of education through the lens of his own son's experience in the public education system. Published in 2007, his article "Why Go to School?" proposes that the educational system in the U.S. was created to teach people how to become workers and ultimately contribute to the economy, not to create thoughtful citizens. He lists the subjects that schools "choose not to teach because of their unquestioned devotion to preparing workers rather than educating people," which include caring and empathy, a love of learning, multicultural community, and social responsibility (Wolk, 2007, p. 652). Ten years later, with his son then in high school, Wolk again evaluates the purpose of school with his follow-up article "Educating Students for an Outdated World," coming to the conclusion that nothing has changed: "schools seem to be even more narrowly devoted to job training and 'doing school' and less about life and curiosity and educating students to be human" (Wolk, 2017, p. 52).

Twelve years before Wolk's realization, Tyack and Cuban (1995) wrestled with the lack of organizational change within the educational system despite numerous attempts at reform, ultimately coming to the same conclusions. Citing technology such as blackboards, calculators, and maps, Tyack and Cuban (1995) argue that "Teachers have regularly used technologies to enhance their regular instruction but rarely to transform their teaching" (p. 122). At a time when computer technology was emerging and starting to enter the classroom, Tyack and Cuban (1995) noted the now familiar benefits such technology may offer (aid for students with special needs,

individualization for student learning, and depth of information readily accessible without trips

to the school library), but they also hypothesized that the impact of the computer on education

"depends in good part on the ability of technologically minded reformers to understand the

realities of the classroom and to enlist teachers as collaborators rather than regarding them as

obstacles to progress" (p. 126).

As these researchers suggest, the pipeline of education remains unchanged since its

industrial revolution, factory line inception despite the technological additions that have been

peppered throughout in the name of innovation and advancement. Wolk's (2017) ultimate

conclusion is that "our schools are educating children for a world that no longer exists" (para 2),

and I could not agree more. Technology and its advancements in the classroom do little to

change the academic trajectory of the education system, especially when they are added as

seasonings and not reshaping the system itself. As Tyack and Cuban (1995) suggest, true

educational reform that disrupts the grammar, or traditional aspects of schooling, "has proven to

be the most difficult kind of reform, and it will result in the future more from internal changes

created by the knowledge and expertise of teachers than from the decisions of external

policymakers" (pp. 134-135). Reshaping the system from the inside out is difficult, but it is more

successful than top-down reforms alone.

Virtual education, however, can be one option for students to push the boundaries of the

traditional brick-and-mortar classroom, creating a new way to envision the educational system.

Pitts et al. (2022) summarize the post-Covid reflections of the future of virtual schools:

> Parents, students, and educators share in a resounding agreement that nobody wants to go
>
> back to business-as-usual. The evidence on student well-being and what we are hearing

from the most innovative leaders is that now is the time to choose courage over comfort.

(p. 9)

As a virtual teacher, content developer, and leader, I have experienced how virtual learning environments can reshape how we think about education. Students can drive their own learning, demonstrate mastery through technology-based projects, and extend learning through personalized learning experiences catered to their interests and pursuits. A viable option that should be made available to all students, virtual education can shift the focus from the teacher, the building, and the bell schedule, making everything about student learning.

Statement of the Problem

The COVID-19 pandemic shook the educational landscape, forcing all educators to think outside the box to deliver lessons virtually due to social distancing restrictions. What could have been an opportunity to innovate, reshape the system, and create new ways to deliver and measure learning too often became a virtual version of traditional brick-and-mortar schooling: worksheets delivered online and virtual lectures delivered in Zoom or Google Meet. In a study by Ogodo et al. (2021), measuring the perceptions of teachers' digital readiness for the COVID-19 emergency remote teaching, they found a "general lack of preparation by school districts, inadequate instructional technology training for teachers, and lack of access/inequitable distribution of digital tools and resources for students" ultimately led to learning loss (p. 24). In addition, the public became confused when educators conflated remote instruction with structured and planned virtual learning (Young & Donovan, 2022). While this worldwide pandemic crisis exacerbated the need for a virtual learning model that transcends the traditional brick-and-mortar classroom, post-pandemic discussions of learning loss currently oppose virtual learning as a viable option. However, it is crucial to understand that systems and structures for effective

virtual learning were not in place for the emergency transition to remote learning (Hodges et al., 2020). Exploring the differences between remote emergency learning and intentionally planned virtual education, Young and Donovan (2022) note that "the 'designed program' that is fundamental to virtual learning is more orderly and certainly requires more time and thought than the pandemic afforded brick-and-mortar school leaders during the height of the crisis" (p. 8). Equating virtual education and remote learning damages the image of true virtual learning environments and hinders the development of virtual academies that could push the boundaries of traditional public education.

Virtual education has long been an outlier in educational options for K-12 settings in terms of legitimacy and successful outcomes for students (Molnar et al., 2015). As discussed in more depth in my literature review in Chapter 2, critics of virtual education argue that online options for schools are ineffective for all students, citing lower test scores and rates of successful course completion (Molnar et al., 2015). However, structure, educator training, and systems in virtual schools greatly impact the success of the program, much like a traditional brick-and-mortar school. Most importantly, virtual school principals have little to no preparation or training for leading virtual schools, leaving them learning about virtual education through trial and error. Studying virtual school principals and the challenges they face, Gustafson and Haque (2020) interviewed 20 virtual school principals throughout California. Ultimately, they concluded that "As K-12 online learning opportunities continue to redefine education across the United States, the need for highly qualified and specially trained virtual school principals to meet the unique challenges of these schools is critical" (Gustafson & Haque, 2020, p. 8). Additionally, Gastafson and Haque (2020) identify virtual principals' perspectives as a gap in current research: "there is a critical need to examine further effective leadership practices in virtual education" (p. 9). Voices

of virtual school principals are missing in identifying educational barriers and successful virtual learning practices, and more information from them could help improve virtual school practices and increase student success.

Purpose of the Study

The purpose of this study was to examine how North Carolina virtual school principals describe their perceptions of current practices in the virtual learning environments they lead and how they compare to current statewide recommendations. My ultimate research goal was to compare current practices of virtual school principals to statewide recommendations for virtual academies. Comparing these perceived roles and practices to both policy and a theoretical framework for effective virtual learning models shows what current principals are seeing in their schools and what can be done to improve them.

I conducted two rounds of interviews with five virtual school principals. In the first round, I gathered data related to how the school leaders perceive their individual school's practices in virtual education. In the second round, I shared a recently released best practices report created by virtual learning stakeholders that was published by the North Carolina Department of Public Instruction (NCDPI) and presented to the NC General Assembly (see Appendix B). The report is titled "Study Group Results: Working Group on Virtual Academies" (NCDPI, 2022). I asked participants to consider how the document relates to practices in their specific virtual schools and invited them to propose their own changes based on their experiences as virtual school leaders. Through this research, I uncovered real-world recommendations from virtual school principals for designing and operating virtual learning environments.

Using basic qualitative research, I conducted two rounds of interviews with five virtual school principals. My research questions were as follows:

RQ1: How do North Carolina virtual school principals describe their perceptions of their

roles and current practices in the virtual learning environments they lead?

RQ2: How do virtual school principals perceive practices in their schools relate to the

Virtual Academy Recommendations document presented to the NC General

Assembly?

Definition of Terms

To discuss virtual learning environments, I would like to provide universal, research-

based definitions for key terms that are necessary for a shared understanding of this paper's

content.

Table 1. Key Terms

Term	Definition
Brick-and-mortar school	A form of traditional school "established [by] physical location where the essential factors of time and place are vital in determining contact between teachers and students, and where students and teachers meet face-to-face in social communication to facilitate exchange in the teaching and learning process" (McFarlane, 2011, p. 26).
E-learning	The combination of learning and technology. According to Aparicio (2016), "Learning is a cognitive process for achieving knowledge, and technology is an enabler of the learning process, meaning that technology is used like any other tool in the education praxis, as is a pencil or a notebook, for example" (p. 292).

Term	Definition
Emergency remote instruction	Specifically referencing the recent Covid-19 pandemic, a form of instruction which forces educators to replicate in person instruction "in an online platform" with "little design involved" (Young & Donovan, 2022, p. 5).
Educational technology	"Technologies—including hardware, software, and digital content—that are either designed or appropriated for educational purposes" (Hennessy et al., 2021, p. 8).
Virtual learning	An educational setting where "students are physically separated from other learners and their instructor and enter learning environments through internet-based tools" (Tawfik et al., 2021, p. 925).
Virtual academy	"A credit bearing institution whose primary method of instruction is provided online through a combination of synchronous and/or asynchronous learning" (NCDPI, 2022, p. 5).
Web 2.0 tools	Technology used in virtual learning environments that encourage collaboration, interaction, and participation such as games, wikis, discussion boards, etc. (Usluel & Mazman, 2009).

Background Context

Virtual Learning in North Carolina

Virtual learning in North Carolina began in 2007 with the inception of the North Carolina Virtual Public School (NCVPS). A supplemental virtual learning option for NC public schools, NCVPS offered credit recovery courses and first-time credit courses for students unable to participate in select course offerings in their respective districts. Funded by NCDPI, NCVPS offered 52,820 course enrollments to 31,609 students during the 2022-2023 school year for both blended and fully virtual course offerings in 115 districts, including charter and private schools

(NC Virtual Public School Score Card). In addition to NCVPS, NC offers two fully virtual charter schools, NC Virtual Academy and NC Cyber Academy, each enrolling 3,285 and 2,715 students respectively in the 2021-2022 school year (NC Report Card). While enrollment in virtual schools is growing, enrollment in virtual options makes up a small percentage of the 1.48 million students enrolled in NC public and charter schools (NC Report Card).

Growth of Remote/Virtual Learning

During the 2020 Covid pandemic, all districts in North Carolina shifted from in-person learning to remote learning, and many districts formed their own virtual academies (VAs) to support families who were hesitant to return to brick-and-mortar learning once social distancing restrictions were lifted. According to the NCDPI's Educational Directory and Demographical Information Exchange (EDDIE) database, only two VAs existed in NC during the 2019-2020 school year; however, due to COVID-19, that number increased to 35 in 2022-2023. These VAs were created as official separate schools within each district and not as an emergency response to the pandemic.

VAs sanctioned during COVID-19 allowed school districts to create emergency virtual options for students. Some of these schools survived after pandemic emergency measures ended. In the 2021-2022 school year, the Charlotte-Mecklenburg Virtual School, representing the largest school district in the state, enrolled 719 students in grades 4-12 in a virtual school, a 60% increase in enrollment from the 2019-2020 school year when enrollment was limited to grades 9-12 (NC Report Card). Conversely, the Wake County Virtual Academy, housed in the second largest school district in the state and created as an emergency response to the Covid pandemic, was closed in June 2022 due to state legislation halting emergency permissions for district VAs. In August 2021, the North Carolina Senate passed *NC Senate Bill 654* that mandates

no public school unit shall use virtual instruction to satisfy the minimum required number

of instructional days or hours after June 30, 2022, without express authorization from the

General Assembly, except for local school administrative units that were assigned a

school code to operate a school with virtual instruction as the primary means of

instruction as of May 1, 2021. (p. 6)

Although declining enrollment numbers were emphasized to justify the closure of the Wake

County VA, 5% of students in WCPSS were still being served in a virtual learning environment

as of March 2022. However, plans to open an official virtual school option in Wake County are

ongoing (Cook & Acome, 2022).

Virtual Academy Guidelines

As a part of *Senate Bill 654*, the NC Legislature released guidelines to govern district

VAs. The Legislature gathered virtual learning stakeholders and leaders throughout the state to

create a report to the NC General Assembly on their recommendations for the future of VAs in

NC. Their NCDPI report was published on March 15, 2022, and it includes definitions of virtual

instruction and virtual academies and includes guidelines and recommendations for further

expansion of virtual education. The introductory portion of the report notes that "the pandemic

has resulted in increased experience and skill with virtual instruction, which has resulted in an

increased demand for virtual academies" (NCDPI, p. 3). To meet that demand, many of the

recommendations made for virtual learning involve systems and structures that cost the same or

more than brick-and-mortar schools.

The NCDPI committee's report recommends technology specialists, learning

management systems aligned with state standards, hardware for all students and staff that is

constantly refreshed with changing technology, properly equipped facilities for administering

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required state testing, and additional staff members to support students' virtual learning needs (NCDPI). In addition, everything from the authorization of the school to the evaluation of students and staff is presented as the same for both brick-and-mortar and virtual learning environments. The requirements placed on virtual learning environments within the report suggest that while the learning environment may be different, the considerations for creating and maintaining a virtual learning environment should be the same as those in brick-and-mortar. The conclusion of the report refers to virtual instruction as "a competitive approach to education" (p. 9).

Based on this contextual background, it is clear that virtual learning is a growing mode of education in North Carolina and will become increasingly scrutinized and regulated by government agencies such as NCDPI in the coming years. While the recommendations of the Working Group on Virtual Academies are largely theoretical at this time, further research is needed to determine what works well in virtual learning environments. My research aims to provide more recommendations for successful implementation of virtual schools in North Carolina based on the experiences of principals who are already managing them.

Methods

In conducting my study, I employed basic qualitative research methods. According to Merriam and Tisdell (2016), "The primary goal of a basic qualitative study is to uncover and interpret people's experiences" (p. 25). This study is exploratory qualitative research to identify commonalities between virtual school principals' experiences and their perceptions of current statewide recommendations for virtual schools in North Carolina.

Through two rounds of semi-structured interviews with five virtual school principals, this study uncovers and interprets the experiences of virtual school principals. As shown in Appendix

A, I asked them to identify their current roles and practices within their virtual schools and compare those practices to findings from NCDPI's Working Group on Virtual Academies (2022) report. According to Merriam and Tisdell (2016), semi-structured interviews provide freedom for the researcher to "respond to the situation at hand, to the emerging worldview of the respondent, and to the new ideas on the topic" (p. 111).

Sample Population

Principals of NC virtual K-12 schools make up the sample population for this study. Subjects were chosen using nonprobability sampling, or purposeful sampling, which "is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned" (Merriam & Tisdell, 2016, p. 96). I identified all virtual school principals in NC found online in NCDPI's published EDDIE (Educational Directory and Demographical Information Exchange) system and sent an invitation to all of them to participate in my research study. All principals were given the opportunity to participate, and the five principals who responded to my invitation were included in this study. I believe this method created diversity in the pool of interviews, which can increase the probability of genuine results (Merriam & Tisdell, 2016). An overview of the participants can be found in Table 2.

Table 2. Participant Demographics

Pseudonym	Race	Total Years of Experience in Education	Total Years of Experience as Virtual Principal	Size of School (Number of Students)
Andrew	W	20	2	302
Bonita	B	28	.5	15
Chelsea	W	17	1	231

Pseudonym	Race	Total Years of Experience in Education	Total Years of Experience as Virtual Principal	Size of School (Number of Students)
Deidre	W	29	1.5	164
Elizabeth	W	22	3	40

Data Collection Methods

As described in the section above, I collected data through two rounds of semi-structured interviews with five NC virtual K-12 principals. I conducted interviews via video conferencing, and the data were transcribed for analysis. The first round of interviews focused on the participants' perceived successes in current structural, organizational, and instructional practices in place at each participant's virtual school, utilizing three of Strauss et al.'s (1981) four types of interview questions—hypothetical, ideal position, and interpretive (as cited in Merriam & Tisdell, 2016). Using these question types, I collected more descriptive, narrative forms of data (Merriam & Tisdell, 2016).

After the first round of interviews, I sent each of the participants a copy of NCDPI's report from the Working Group on Virtual Academies, asking them to read and review the recommendations made in the document. The second round of interviews focused on principals' reactions and reflections on the document, providing insight into the feasibility of the recommendations given. I then used the principals' responses as a form of document analysis to further deepen their reflections on what virtual learning practices should be. Merriam and Tisdell (2016) note that "if documents are found to be illuminating to the topic of research and incorporated into the process of inductively building categories and theoretical constructs in the first place, they then become evidence in support of the findings" (p. 181). During the second round of interviews, we discussed the key document and compared current practices in real

virtual schools to the state's recommendations, illuminating the space in between. I used Otter, a popular transcription software, to transcribe the interviews.

Data Analysis Strategies

My analysis was informed by the E-Learning Systems theoretical framework to identify overarching themes among all principals. Merriam and Tisdell (2016) define coding as "assigning some sort of short-hand designation to various aspects of your data so that you can easily retrieve specific pieces of the data" (p. 199). In addition, Holley and Hollis (2019) add that "Coding effectively indexes the data and serves as a tool to help researchers build connections between different pieces of data" (p. 156). First, I read each transcript, and using Delve coding software, organized common topics that principals mentioned throughout their interviews. I then took the topics and organized them into themes, looking for commonalities among what each principal said. For example, every principal discussed how they work with SPED students in the virtual environment. I combined all of these responses in a code for SPED, and then reviewed all of the coded passages to find commonalities.

Using the E-Learning Systems Framework, I further organized each code into the three elements of an e-learning system: people, technology, and services. I then read through the newly organized codes to find themes recurrent throughout the data. As Glaser and Strauss (1967) note, "In organizing codes into categories, recurring data patterns are identified, and the categories stand independent from the codes that were used to create them" (as cited in Holley & Hollis, 2019, p. 159). Using my example of the SPED code, I isolated which aspects of working with SWD were associated with people, technology, and services and what patterns exist in that data. My resulting themes, based on the patterns found in the organized data, provide an overall

assessment of how principals perceive their roles and practices in their current schools and how that compares to the NCDPI report.

Trustworthiness

To ensure trustworthiness, I employed reflexivity, member checks, and peer reviews. As a former leader in a virtual school and a current virtual teacher, I recognize my personal background experience in virtual schools lends itself to personal bias. Journaling my biases throughout the process allowed me to isolate my beliefs from those of the research participants. For example, throughout the interview process, my journal helped me process my perceived differences between practice and policy, illuminating my personal bias so that I could accurately record what participants described when they found so many similarities between the published recommendations and their current practice. As described by Creswell (2016), reflexivity journaling can support the research process, and in "sharing these biases and beliefs, the accounts become more accurate" (p. 192).

In order to ensure the validity of my conclusions, I also shared my findings with research participants in order to validate my interpretations of their responses. After writing my findings, I shared a list of each participant's quotes and my interpretations of those quotes in order to ensure their insights were accurate and not my own. I sent each participant a copy of their responses I intended to use within my research via email, and I received confirmation from three out of five of them. Each of these participants agreed that my findings from their interviews were accurate representations of their experiences and beliefs. The remaining two did not respond to my member check requests after three attempts. Holley and Hollis (2019) describe the purpose of these member checks, stating that "while the participants may not have used the exact words

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used by the researcher to describe their experiences, the analysis accurately describes their reality" (p. 169).

Lastly, I employed peer review as a trustworthiness measure to ensure the validity of my research. I used both a peer reviewer who is a fellow student in the doctoral program and who has little knowledge of virtual learning environments, and also a peer reviewer who is an instructional leader in a NC virtual school and who has extensive knowledge and virtual learning experience. My peer reviewer who is experienced in virtual learning provided feedback on my conclusions, noting that she agreed with my conclusions based on her own personal experience. My other peer reviewer provided feedback to help shape my descriptions of virtual learning so that an educator with little virtual experience may understand the key concepts and conclusions I made. Both peer reviewers served as validity checks to "provide support, play devil's advocate, play challenger, and help refine the study" (Creswell, 2016, p. 194).

Limitations

This study is limited in scope due to the recent decrease in virtual schools following the pandemic as a result of *Senate Bill 654*. While emergency virtual academies increased during the Covid-19 pandemic, *Senate Bill 654* limited the use of virtual academies to only those assigned an official school code by NCDPI. I have limited the participants to only include principals in NC for consistency, but the sampling pool is small: only 35 Virtual Academies and two virtual charter schools. Using only five of these virtual school leaders led to a small sample size, making generalization of my findings impossible. In addition, many of the virtual academies are newly opened and may still be in development and refinement. Therefore, the results of this study are limited to information based on newly developed virtual schools and not seasoned, experienced organizations.

Reporting the Data

Using the interview transcripts, I report the data in Chapter III, organizing it by research question. For the first research question, I organized the data from the interviews according to the three elements of the E-Learning Systems Theoretical Framework in order to illuminate the current state of the e-learning ecosystem, identifying its imbalance. For the second research question, I organize the data by theme to identify principals' concerns with the NCDPI report in order to separate current practice from policy recommendations. I also chose to organize this section by concerns because all principals found the NCDPI report relatively applicable to their own practice. Using the current data, I found that the policy recommendations and current practices are in alignment, suggesting that the imbalance of the e-learning ecosystem also applies to the NCDPI report.

Theoretical Framework

I used the E-Learning Systems Framework developed by Aparicio et al. (2016) to analyze my data. The E-Learning Systems Framework describes the virtual learning environment as an ecosystem in which multiple sources contribute to the success of the overall system. Aparicio et al. (2016) trace concepts in virtual learning from the origins of computer-based learning back to 2016, noting that "the concept trend no longer means simply the use of a computer as an artifact in the learning process," and this means that e-learning is more than using a computer to deliver instruction (p. 295). Instead, they propose that "e-learning should be studied using a combination of various dimensions," signifying that technology such as the use of computers is only one element of the e-learning system (p. 298). Specifically, Aparicio et al. (2016) call for e-learning systems that balance three key components symbiotically in order to provide effective virtual learning environments.

The three main components of the E-Learning Systems Framework are people, technology, and services (Aparicio et al., 2016). People refers to any of the stakeholders working within the system to both deliver and receive virtual learning experiences. Technology refers to the mechanism that provides support through content, communication, and collaboration, including access to materials through Internet Service Providers. Lastly, services refers to the various pedagogical approaches and activities created and executed in the virtual classroom. These three components, as shown in Figure 1 and explained more thoroughly below, must be equally balanced in order to create a successful implementation of an e-learning system.

The interconnectedness of all three components of the framework create the e-learning system we can now apply to today's virtual schools, an application I have not found in prior studies. Applying e-learning systems to virtual schools is a gap in research, easily explainable by the ever emerging and ever-changing field of virtual learning and the widely international audience for the framework itself. In addition, recent references to Aparicio et al. (2016) utilize it as a foundational work to guide discussions of specific innovative technology applications to virtual learning such as augmented reality (Lin & Yu, 2023b) and AI Chatbots (Lin & Yu, 2023a) or as a steppingstone to discuss e-learning applications post-Covid-19 (Kim et al., 2023; Ní Shé et al., 2023). While these applications demonstrate the usage of the E-Learning Systems Framework for small portions of virtual learning and the tools used to deliver virtual instruction, it is possible to apply a wider scope, analyzing an entire virtual school through this lens. Utilizing the framework itself as a guide for analyzing a virtual school as an e-learning system that must combine the elements of people, technology, and services is a new application worth exploring.

Figure 1. E-Learning Systems Theoretical Framework Diagram (Aparicio et al., 2016)
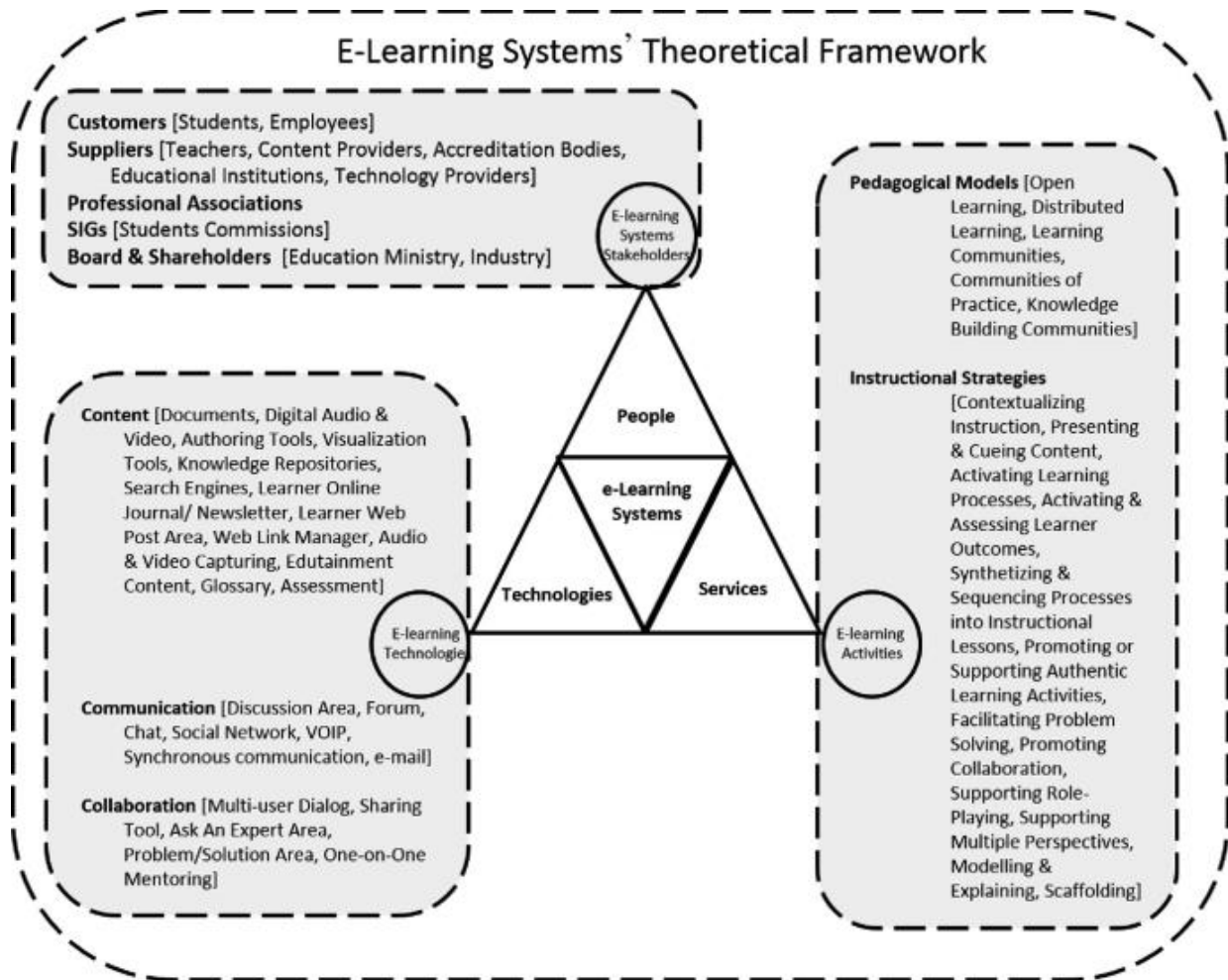
In my study, I argue that virtual schools are e-learning systems that must include the three components of people, technology, and services in a cohesive balance, a symbiotic ecosystem, in order to achieve successful implementation. Naglaa and Ehab (2021) describe an e-learning ecosystem as "all the components required to implement an e-learning solution" and much like a biological ecosystem, "Every organism has a role to fulfill and there must be a harmonious balance between all aspects of the ecosystem for the organisms to flourish and evolve" (p. 136). Overemphasis on one component throws off the balance of the ecosystem, signaling ineffective implementation. The challenge to balance all of the components of the e-learning system must be shouldered by the leader of the virtual school, the principal. Understanding a principal's roles

and current practices within their schools along with their perspectives of current policy

recommendations for practice in NC demonstrates whether NC virtual schools are successful in

this balancing act. The following sections further illuminate the three components of the E-

Learning Systems Framework, focusing on their origins and my application of each within this

research study.

People

The people, or stakeholders, make up one dimension of the E-Learning Systems

Framework. These stakeholders include the students, teachers, and outside influencers in the

virtual learning environment. While Aparicio et al. (2016) define these stakeholders as belonging

to the key groups of customers, suppliers, board and shareholders, professional associations, and

special interest groups, the term stakeholder can also imply a fluid definition of people who

influence or who take part in the environment itself. According to Thompson (1967), "A

stakeholder is in an organization (by definition) any group or individual who can affect or is

affected by the achievement of the organization's objectives" (as cited in Freeman, 2010, p. 46).

Therefore, the use of the term stakeholders in any organization means that the "model will be

sensitive to future change," signifying the fluidity of the term over time (Freeman, 2010, p. 46).

There have been many changes in virtual learning environments from 2015 to present, including

the advent of the completely virtual schools which are the focus of this study. In addition, the

stakeholders have shifted to include not only people who are directly involved in the giving and

receiving of educational content, but also the community members and district school

representatives who are equal participants.

For the purposes of my study, people in the E-Learning Systems Framework included all

stakeholders who play a direct and indirect role in the success of a virtual school as described by

the principals who are leading those schools. This can include students, parents, teachers, community members, district-level support staff, and virtual learning program providers. As noted by Aparicio et al. (2016), "Each stakeholder group interacts differently with the system, although all of the stakeholders play an important role within the e-learning system activities" (p. 299). Viewing the roles and perceptions of virtual school principals by examining how many stakeholders they serve and in what capacity they are served helped me determine the balance of the e-learning ecosystem and how each leader perceives their part in creating that balance.

Technology

Technology is an essential part of the e-learning system; without it, there can be no virtual learning environment. However, the E-Learning Systems Framework isolates technology as only one element of the e-learning ecosystem, "focusing more on the contents type and ways of communication, than on providing a list of the platforms existing in the market" (Aparicio et al., 2016, p. 302). To create this distinction, Aparicio et al. (2016) studied known e-learning platforms from 1960-2013, showing the overlap of technology with pedagogical models and instructional strategies based on the research of Dabbagh (2005) along with the key concepts of e-learning as defined by Mason and Rennie (2006). While Dabbagh (2005) focuses only on the pedagogical framework of e-learning, Mason and Rennie's (2006) analysis of e-learning focuses "on the content, some on the communication, some on the technology" (p. xiv). Aparicio et al. (2016) found that while technology was embedded in all aspects of the e-learning platforms, more distinction for what each technology application meant could be seen when viewed through the lens of both Dabbagh's (2005) and Mason and Rennie's (2006) findings. The result means that technology itself is not the primary driver of the e-learning system–the *function* of the technology is. Therefore, Aparicio et al. (2016) separate technology into the content,

communication, and collaboration found in Mason and Rennie (2006) in order to differentiate it from the pedagogical services proposed by Dabbagh (2005) as discussed in the next section.

Based on this understanding of the separation between pedagogy and delivery, the key indicators I used in my study for technology are the content provided, the communication apparatus utilized through the technology, and the collaborative elements the technology can facilitate. Differentiating the principals' perspectives of their roles and practices through the lens of technology can shed light on the principal's role in acquiring new technology, training teachers to utilize technology in order to achieve better instructional outcomes and utilizing communication tools for the betterment of the school. This is a key role principals must play in order to successfully implement virtual schools.

Services

Services are what Aparicio et al. (2016) use to delineate technology through pedagogical models and instructional strategies. Separating the technology used to deliver instruction from the instruction itself, services isolate only the instructional methodology used in virtual learning. According to Dabbagh (2005), "pedagogical models are cognitive models or theoretical constructs derived from knowledge acquisition models or views about cognition and knowledge, which form the basis for learning theory" (p. 32). Aparicio et al. (2016) define the pedagogical models in e-learning as "open learning, distributed learning, learning communities, communities of practice, and knowledge building communities" and notes that they are supported with specific attributes: "learning is a social process, learning in group is fundamental to achieve knowledge; distance is unimportant (space questions are blurred); teaching and learning can be segregated in time and space" (p. 300). In addition to pedagogical models, services also include instructional strategies. These strategies "operationalize the pedagogical models," and function

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as the intentional method of delivery (Aparicio et al., 2016, p. 300). In essence, these are the activities that can be used to deliver, assess, or strengthen course content with the help of technology. The area of services, then, can be seen as the output, the focus on learning itself, in the virtual learning environment.

Utilizing the distinction of services within the E-Learning Systems Framework as a lens for my study helped me understand the principals' perspectives on their roles and practices involving the learning process and the ways in which their schools deliver instruction. As instructional leaders of their schools, principals should be a large part of the instructional design and implementation, guiding teachers to plan and implement effective lessons and holding teachers accountable to their expectations.

Overall, utilizing the E-Learning Systems Framework as a guide for my research allowed me to examine the virtual academies as ecosystems that have overlapping and interconnected parts that make a whole e-learning system. Virtual schools are not just teachers teaching students in a virtual classroom. Virtual schools involve collaboration and communication between all stakeholders, provide effective virtual instruction, and support the efforts of teachers, students, and families through technology. The symbiotic relationship among people, technology, and services, according to the framework, is a key indicator of success, and using this framework as a lens to view what principals describe in their own virtual school's practices may shed more light on successful implementation.

Researcher Experience

As a virtual teacher, former virtual instructional leader, and current brick-and-mortar administrator, my experience in both environments guides me to my research questions and my interest in virtual education. I have experienced the challenges of creating meaningful

instructional content in a virtual environment, and I have seen the challenges of leading virtual

teachers through observations, discussions with organizational directors, and curriculum

planning. Frustrated with the lack of training and support in the virtual environment, I pursued a

graduate certificate to obtain my administrator licensure so that I could provide organizational

structure and support for teachers. As a newly licensed administrator, I chose to return to the

brick-and-mortar environment to learn more about the role with the intent of returning to the

virtual environment one day.

When Covid-19 struck and all schools were forced to provide emergency remote

instruction, I became a leader among my colleagues, sharing my virtual education experience

and helping everyone transition to a new way of teaching and learning. However, as we all

returned to buildings and the pandemic waned, the discussions of learning loss and the lack of

effective instruction during remote learning felt like an attack on virtual learning in general. In

addition, witnessing the abandonment of some of the virtual instruction lessons learned during

the pandemic affected me personally, making me feel as if the moment for innovation and

change had passed without any permanent changes to the educational landscape.

I am driven to complete this research in order to provide a roadmap for virtual schools to

be successful because I truly believe they can be. Now that the world has been exposed to the

option of virtual learning, I believe it is important to place a spotlight on what virtual schools can

be with the proper organizational structures, leadership, and instructional practices.

Significance

This study increases the research base for virtual learning best practices post-Covid and

provide a roadmap for future development of virtual K-12 schools. Virtual learning since Covid

is increasing in popularity and is being considered by state legislatures who are creating

guidelines for successful implementation. In NC, the development of new virtual schools hinges on best practices identified by NCDPI's report from the Working Group on Virtual Academies, but perspectives from virtual school principals about real-world applications and strategies for success have not been identified. This gap in research, combining real-world application and government agency recommendations, may provide more insight on true successful practices in the field of virtual learning. In addition, aligning recommended practices with the E-Learning Systems theoretical framework may provide key insight into the ecosystem of NC virtual schools, illuminating what people, technology, and services are currently utilized and what improvements may be made to achieve balance within the e-learning ecosystem.

Chapter Overview

In Chapter 2, I conduct a literature review, focusing on technology in education, virtual learning, and principals' roles in the virtual learning environment. Providing research and noting studies already completed in the integration of technology and education shapes the focus for the emergence of virtual learning. Virtual learning studies highlighting best practices and procedures established in the field provides insight into the study's inquiry of current practices in NC virtual schools. Lastly, a section on the role of principals within virtual schools and studies revealing information about virtual school leadership is considered in order to provide a basis for the study subjects.

In Chapter III, I reveal my findings from the data collected, using an analysis of coded interview transcripts. I discuss recurring ideas and commonalities among principals organized by research question. Thematically, I address the E-Learning Systems framework as seen in principals' perceptions of their roles and practices, analyzing the strengths and weaknesses in the system. In addition, I combine my analysis of the "Study Group Results: Working Group on

Virtual Academies" report presented by NCDPI with the reactions and reflections of research participants to the report in order to compare their current practices to proposed policy.

In Chapter IV, I compare the findings from Chapter III to existing research I considered in the literature review, using the E-Learning Systems theoretical framework to deepen my analysis. I draw conclusions from the data and provide suggestions for future improvements in NC virtual schools. I also provide recommendations for future research and implications for the future of virtual schools in NC.

CHAPTER II: LITERATURE REVIEW

Based on the proposed methods of research found in Chapter I, I used a basic qualitative design to study current NC virtual K-12 principals' perceptions of successful implementation in the virtual environment. I interviewed five virtual school principals to understand their experiences as virtual leaders and strategies they feel are successful in their schools. In a second round of interviews, I asked the same principals to review current guidelines set forth by the NC Working Group on Virtual Academies to understand how they believe those guidelines reflect the work they are currently doing and what amendments might need to be made for practical application at the school level.

Understanding the current complications and benefits of successfully implementing Virtual K-12 Schools in NC requires extensive background knowledge found in prior research. In this chapter, I explore the evolution of educational technology integration to show the historical use of technology in the classroom and the challenges and benefits that technology has offered prior to the usage of virtual learning environments. Next, I investigate the advent of virtual learning, its historical and current implementation, and what current researchers find when investigating successful implementation strategies, the ultimate goal of my study. Lastly, I examine virtual school leadership in order to provide background context for what challenges my study participants experience in their current positions as virtual school principals.

Educational Technology Integration

Since the invention of the personal computer in the mid-1970s, technological application has become a focus in the classroom environment. Hardware and software developers theorized that the more access to technology students had, the better they would perform (Dwyer, 1990). Apple's Classroom of Tomorrow (ACOT) program in the late 1980s provided select schools

with access to the latest computers and software in hopes of proving that their technology would revolutionize the educational environment (Dwyer, 1990). Studying teacher journals, weekly reports, assessment data, and researcher observations of ACOT in five schools over a period of 4 years, Dwyer et al. (1990), however, found what echoes in all discussions of education and technology: the successful integration of technology in education is a process marked by two factors: (1) teachers' perceptions, understanding, and utilization and (2) the need to restructure the educational system itself. Below, I review research on the teacher's role and restructuring the educational system through the incorporation of technology in the classroom.

The Role of Educator

Well-trained, high-quality educators provide the foundation of success when introducing technology into the educational environment. However, according to Feerick et. al. (2022), "As promising as much of the available technology is, however, there are significant barriers to its effective embedding into teaching, learning and assessment" (p. 29). The evolution of technology implementation found by Dwyer et al. (1990) permeates discussions of technology in education, denoting five stages of technology integration—entry, adoption, adaptation, appropriation, and invention—and the motive for moving forward comes from teachers who will "increasingly need opportunities to think about instruction and learning: to confront their actions and examine their motives; to bring their beliefs to the surface; and to critically reflect on the consequences of their choices, decisions, and actions" (pp. 40-42). Peck et al. (2015) echo this sentiment, concluding from a qualitative study of two high schools in metropolitan southeastern United States that "educators should begin to investigate how and why traditional practices such as worksheets, basic quizzes, and tests continue to hold such sway in high schools" (p. 25). The

pedagogical self-reflection of teachers, therefore, is an important catalyst for successful technology integration in the classroom.

Many researchers have found that the barriers for educator self-reflection and learning are to blame for the underutilization of technology in schools. For example, Cuban et al. (2001), in a seven-month qualitative study using interviews, surveys, and observations, found that teachers in two high-tech Silicon Valley schools "adapt technology to fit the familiar practices of teacher-centered instruction" due to a lack of time and training (p. 825). In a survey-based study of school counselors in northwest Ohio about the impact of technology on at-risk students, Muir-Herzig (2004) compared the level of technology usage to students' attendance and performance and similarly found that teachers "have little or no time to learn new technology, or to place it into the curriculum" (p. 124). Additionally, in a mixed methods study involving teacher surveys, observations, and interviews, Hsu (2016) found that barriers to technology integration focus less on access to technology and more "on how to successfully integrate technology into lessons" (p. 38). In these educational environments where technology is added rapidly with little to no time for training or application, technology use has shown to have little or no impact on student performance because it takes the place of the same methods used since the inception of education. Muir-Herzig (2004) notes "no significant relationships found between overall teachers' technology score and at-risk students' attendance and grades" (p. 127). In essence, regardless of teachers' high or low level usage of technology, there was little to no impact on learning. Teachers, without the time or direction to restructure their pedagogical practices to create a foundation for technological advancements, are left to add in technology where it fits.

Reshaping the Educational System

Based on the studies discussed above, educators need to shift their educational practices to make technology effective in the classroom because adding new technological advancements has historically done little to improve learning. Rather, we need to reshape the educational system to support high quality, effective technological implementation. In a systematic study of literature regarding technology and education from 1980-2017, Egemen (2018) concludes, "Involving instructors in each process of implementation is an essential way of improving learning" (p. 103). Unfortunately, the exponential and ongoing growth of technology means that even the most adept educators struggle to keep up. Without the time and training to change pedagogical practices, technology continues to be an addition rather than the foundation of the educational system. In a nationwide survey to determine teachers' reasoning for using technology, Heitink et al. (2016) found that many teachers chose digital tools and activities based on the "attractiveness of the technological tool, realization of educational goals and facilitation of the learning process" but not from a pedagogical basis (p. 81). In this study, the technology itself was chosen to support current pedagogical practices, not as a new pedagogical approach: "most teachers seemed to be able to explain why the chosen technology fit with the subject matter and/or pedagogy, but only half of the teachers reflected this in their pedagogical enactment" (Heitink et al., 2016, p. 81). Using data from a longitudinal study of the digital learning framework focusing on a teacher survey, Feerick et al. (2022) similarly report that embedding digital technology (DT) into instruction meant "using DTs in teaching, learning and assessment" to the majority of post-primary educators (p. 34). This methodology serves to restructure teaching and learning from the inside out, not adding new technological advancements as supplemental aids.

In response to the underutilization and lack of integration of technology in the classroom, Muir-Herzig (2004) defines the necessary measures for robust and effective technological innovation in the educational system:

> Teachers must change the way they teach. Classrooms must take on the student-centered learning methods. Teachers need to become facilitators. Students need to be allowed to use technology as a tool, which will enable them to collect, analyze, and create major projects. When schools are prepared for technology, the entire school benefits. (p. 129)

This reorganization and revitalization of educational methods is enacted by teachers, but it begins with the reshaping of the educational system itself.

The current educational system, despite numerous advancements in technology and developments in effective pedagogy, has maintained much of its basic structure since its inception. Students attend school in a building, sit in classrooms, listen to instruction from teachers, and are assessed on what they have learned. Cuban et al. (2001) hypothesize that "Fundamental changes would need to be made in how schools are organized, how time is allocated, and how teachers are prepared" in order to change the educational trajectory where "In 2050, the typical American high school classroom should be familiar terrain to great-grandparents of the time who could slip behind a schoolroom desk and recognize teaching and learning from their own youth" (p. 830). Peck et al. (2015) conclude that technology alone does not provide "a simple 'silver bullet' remedy that can effectively ameliorate student academic problems" (p. 26). A system designed prior to technological advancement, traditional public education in the US requires structural change to benefit most from educational technology.

Virtual Learning

From integrating technology into a traditional classroom to creating a virtual classroom itself, virtual learning has become a new advancement in education which can create the required structural change discussed in the section above. Early virtual learning began in the 1990s with distance learning and has since migrated to the Internet with web tools, online learning platforms such as Canvas and Google, and virtual teachers who serve as instructional guides. Cuban and Jandric (2015) note that virtual learning can be seen as a rebirth of the deschooling movement of the 1960s and 1970s led by Illich, Goodman, and Reimer, who thought society should abandon schools because they "taught conformity, squelched real learning, overlooked individual differences among children and youth, and were holding tanks for eventual dropouts" (p. 430). Virtual learning proponents ignore the social, custodial functions of traditional school not out of rebellion but due to a "lust for more, better, and faster information and communication in schools" (Cuban & Jandric, 2015, pp. 430-431).

Virtual learning also comes from a desire to increase student achievement and flexibility while decreasing the overhead costs associated with a traditional education. Molnar et al. (2015) state that "Virtual instruction holds the promise of efficient, highly individualized instruction, reaching students who seek access to quality courses" and "has been referred to as a 'disruptive innovation'" (p. 14). Disrupting the traditional ideas of school with exploding technological advancements, virtual learning is a new way to look at education. Whatever the motivating factor, Molnar et al. (2015) state, "Virtual education continues to be a focal point for policymakers interested in expanding education choices and improving the efficiency of public education" (p. 1). Ever expanding, the virtual classroom is gaining popularity and "is up by more

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than 50,000 students since 2017-18" (Herold, 2021, para 5). Virtual learning is on the rise as a viable medium for learning.

In the absence of the traditional brick-and-mortar setting, the roles of teacher, student, and parent must also shift in order to meet the demands of a new learning environment. The following sections explore research-based recommendations for the changing roles of teachers, students, and parents in a virtual learning environment. Through the lens of the E-Learning Systems Framework, this element of virtual learning is defined as people. It is important to note that these three stakeholders are the largest part of the current research on the changing roles in virtual learning, but as shown in Aparacio et al. (2016) and throughout my study, they are not the only stakeholders who influence the e-learning system.

Changing Teacher Roles

Teachers in a virtual learning environment must possess specific skill sets in order to be successful. Molnar et al. (2015) note that despite the decreased reliance on face-to-face instruction, "virtual education does not diminish the important role of teachers and, consequently, effective teachers remain a critical component of high-quality instructional opportunities" (p. 20). Fedynich (2013) agrees, adding that "Online teaching is very different than that of the face-to-face classroom teaching element" (p. 5). Virtual learning can be achieved through asynchronous or synchronous learning environments. Asynchronous learning allows students to navigate course content without direct communication from the teacher; synchronous learning adds virtual video conferencing with the teacher in addition to student-led asynchronous learning.

In asynchronous virtual learning, the role of the teacher as defined by Baran et al. (2011) involves not just a pedagogical role, but also includes the roles of facilitator, instructional

designer, social engager, manager, and technician (as cited in Grammens et al., 2022). However, with the advancements of video conferencing and the development of synchronous virtual learning, that role has changed even more, requiring teachers "to manage the input they receive from students in real-time, and stimulate the interaction through different communicational channels, using a variety of tools" (Grammens et al., 2022, p. 3). Using a systematic literature review of publications referencing teacher roles in virtual learning environments, Grammens et al. (2022) create an addendum to Baran et al.'s original roles for virtual teachers to adjust for the addition of synchronous virtual learning environments. Because of the seminal nature of this study and the detailed descriptions of changing teacher roles necessary for effective virtual learning environments, the following sections will discuss the Grammens et al. (2022) findings, detailing each role they argue a virtual teacher must fulfill.

The Instructional Role

Much of this role is tied directly to the same role brick-and-mortar teachers employ on a daily basis. Virtual teachers in a synchronous environment must organize the learning environment, stimulate active learning, design and create learning tasks, implement assessments and provide feedback, personalize learning, and motivate students (Grammens et al., 2022). Integrating technology into each of these elements through the use of breakout rooms, live chat, and interactive virtual learning tools is essential in this process, but each step is "equally important for all teachers, whether they are teaching online or not, or whether they are providing instruction in a synchronous or asynchronous way" (Grammens et al., 2022, p. 6).

The Managerial Role

As a virtual teacher, it is important to assume the role of learning manager in order to control the virtual learning environment. Grammens et al. (2022) state that "Managerial

competencies are of particular importance in synchronous online videoconferencing

environments, given the limited amount of time for instruction, and the real-time use of multiple

technological tools" (p. 7). In this role, teachers lead the instructional process, establish virtual

classroom protocols and procedures, manage technological equipment and tools, and organize

and plan the direction of the course (Grammens et al., 2022). The managerial role of a brick-and-

mortar-based teacher is enhanced with the addition of the virtual environment, creating a new set

of protocols and procedures directly related to the tools and resources used.

The Technical Role

Diverging from the traditional teacher, the virtual teacher must also be a technical support

assistant for students. This role requires teachers to support technical difficulties, understand and

utilize technical tools, understand the benefits and drawbacks of each technical tool used in

instruction, have a positive attitude towards the use of technology in the virtual classroom, and

demonstrate and encourage safe use of digital technology (Grammens et al., 2022). Supporting

students in this role is essential to providing a successful virtual classroom as it is at the heart of

virtual learning itself.

The Communicator Role

A virtual teacher must be able to multitask, analyze different ways of communication

with students, and use that knowledge to move student learning forward. Grammens et al. (2022)

notes that "The main focus of the communicator role therefore lies on facilitating clear and

smooth communication within the environment" (p. 9). In this role, virtual teachers must

facilitate and encourage communication between students and the entire class, master the varied

communication channels available in the virtual classroom, choose appropriate communication

strategies for the desired learning outcome, and have excellent communication skills in general

(Grammens et al., 2022). Communication and collaboration within a virtual environment is part of the E-Learning System Framework element of technology, and teachers utilize different technology tools to enhance them. Direct instruction, part of Aparacio et al.'s (2016) services, must be clear and engaging, and learning opportunities must be clearly explained and monitored. In addition, virtual teachers should teach students how to communicate effectively in the virtual environment through modeling and instruction.

The Social Role

One of the most important roles of the virtual teacher lies in the implementation of positive relationships due to the removal of traditional physical interaction. Grammens et al. (2022) note, "Teachers in synchronous online videoconferencing environments should pay special attention to the facilitation of social interaction and the development of authentic and sustainable relationships with the students, and between students mutually" (p. 10). To focus on this area, virtual teachers should build an online learning community, model and teach consideration of cultural differences, and build strong teacher-student and student-student relationships (Grammens et al., 2022). Efforts to create a positive virtual learning community require more work than those in a traditional classroom. Grammens et al. (2022) note "The goal of such a community is to make students feel that they belong to a positive and supportive learning group, where peer-to-peer learning takes place through interaction to achieve the shared learning goal" because "there is often little room for the processes of socialization that are characteristic to small talk on the playground or in the corridors in between classes" (p. 10).

Through this analysis of the Grammens et al. (2022) findings, it is clear that the teacher role extends beyond the traditional role of a brick-and-mortar teacher. However, the teacher is not the only role that requires shifting for successful virtual learning implementation. Students,

too, must be prepared to learn in a virtual environment, requiring a shift in responsibility, accountability, and communication.

Changing Student Roles

Students in an online classroom must also adapt in order to succeed. Podoll and Randle (2005) note that "self-motivation, self-discipline, and time management [are the] most critical" attributes of a successful online student (p. 17). Working in an online learning environment means a student must be more responsible for his/her own learning and driven to complete tasks or initiate communication with teachers and learning supporters independently, and students cannot wholly depend on others for motivation, support, or interaction. Vonderwell and Savery (2004) note the importance of self-regulation as one of the most important characteristics of a successful online learner because "Self-regulated learners know how to learn, how they learn, how to reflect on their learning, how to initiate learning and how to use time management skills efficiently" (p. 39). In a study involving semi-structured interviews with parents of students in a virtual online charter high school in the western US, Curtis and Werth (2015) identified similar characteristics of successful online learners: "One hundred percent of the students who were identified as successful going to school online were also identified by parents as being self-motivated or self-directed" (p. 177). Students in a virtual environment must be more responsible and independent than their peers who learn in a traditional classroom.

Building on this research, Martin et al. (2020) developed a tool to measure Student Readiness for Online Learning (SROL), collecting data from 177 students in two higher learning institutions in NC. Measuring four key attributes of an online learner—technical, communication, time management, and online student characteristics—Martin et al. (2020) concluded that "Students should be encouraged to reflect on their attributes as an online learner

…" and "It is crucial for students to be prepared in all these four areas" (p. 54). Vonderwell and Savery (2004) echo the need for preparedness and self-reflection, stating that "Online learners need to understand the dynamics in an online setting, how online learning works; interactions, relations, perceptions, role of learners and instructors" (p. 38). Becoming a virtual learner involves self-reflection and understanding of one's strengths and weaknesses in order to be successful.

While not all students may possess the characteristics described in this section, researchers argue that paired with effective virtual teacher roles, increased parental involvement may ameliorate potential barriers to success. Part of the previously discussed roles of virtual teachers includes accounting for shifting student roles. Vonderwell and Savery (2004) note that "Instructors need to understand student behavior and students need to understand online learning and how people may behave in online settings" (p. 41). In addition, increased parental involvement, discussed in the section below, can support students who struggle meeting the expectations a virtual environment requires. However, as Curtis and Werth (2015) found, "online learning does not work effectively if students are not involved or engaged" and "no amount of parental involvement will be able to overcome an unwilling student" (pp. 178–179). Therefore, at the very least, a successful virtual student must be willing to participate and try in the virtual school environment (Curtis & Werth, 2015).

Additional Parental Involvement

In addition to changing teacher and student roles, parents must be more involved in the virtual learning process due to the physical disconnect between teachers and students. Parents are partners with teachers, communicating frequently and working together to help students succeed. Curtis and Werth's (2015) study involving interviews with parents of students in a virtual online

charter high school in the western US found "The experiences of parents in an online school indicated that in a full-time online school, the primary roles of the parent were to monitor, mentor, and motivate" (p. 183). Parents are responsible for making sure students are on task, helping them as they complete their assignments, and encouraging them to continue their studies, often resulting in more of a time commitment than that of parents whose students attend traditional brick-and-mortar schools (Curtis & Werth, 2015). Echoed by Currie-Ruben and Smith (2014), "Although the online teacher can always be e-mailed or called, the minute-to-minute, hour-to-hour, and day-to-day assistance is often provided by a member of the student's family" (p. 118). However, "According to the parents in this study, no amount of parental involvement will be able to overcome an unwilling student" (Curtis & Werth, 2015, p. 179). Therefore, the student, teacher, and parent must be equally committed to virtual learning in order to be successful, and the lack of involvement from parents in a virtual learning environment has been characterized as a key indicator of student failure (Curtis & Werth, 2015; Currie-Ruben & Smith, 2014).

Comparing parent involvement success indicators between traditional brick-and-mortar schools and virtual schools is ongoing. In a study conducted by Liu et al. (2010), researchers measured parental involvement in a virtual high school with the Hoover-Dempsey and Sandler model developed in 1995. Hoover-Dempsey and Sandler (1995) state that "In most circumstances, parent involvement is most accurately characterized as a powerful enabling and enhancing variable in children's educational success, rather than as either a necessary or a sufficient condition in itself for that success" (p. 319). In other words, their model specifically measures the varying levels of parental involvement and participation in their child's education to indicators of success as guided by the four mechanisms of influence: encouragement,

modeling, reinforcement, and direct instruction (Hoover-Dempsey & Sandler, 1995). In their quantitative study of virtual high school student and parent responses to a Likert scale measure of parental involvement compared to their academic achievement, Liu et al. (2010) concluded that the Hoover-Dempsey and Sandler model "is overall a valid and reliable measurement of parental involvement in virtual learning environments" (p. 121). Developed for traditional brick-and-mortar schools, this model "explores parental involvement by investigating the mechanisms of influence parents will engage in when they are involved" (Liu et al., 2010, p. 108). While Hoover-Dempsey and Sandler proposed their mechanisms for the traditional brick-and-mortar classroom, they anticipated an environment where learning must take place outside of a classroom: "when the normal teaching and learning processes of the classroom are insufficient in themselves to create learning, the enabling and enhancing functions of parental involvement may become critical to children's educational success" (p. 322). Liu et al. (2010) expand the reach of Hoover-Dempsey and Sandler's (1995) four mechanisms as shown in the sections below. Understanding how these mechanisms function in virtual environments is key to illustrating the instrumental role of the parent for students participating in virtual learning.

Parental Encouragement

The role of the parent as a motivator for success and supporter of academic achievement is found in the mechanism of parental encouragement. In a virtual environment, Liu et al. (2010) note that "Compared to traditional classrooms, online teachers lack regular cues such as facial expressions and body positions to discern students' confusion or frustration in virtual learning environments" (p. 110). The role of the parent is to be the person observing student behavior and encourage him/her to continue, offering support along the way.

Parental Modeling

In this mechanism, parents model positive behavior associated with education, and students follow their lead. Citing Hoover-Dempsey and Sandler (1995), Liu et al. (2010) state, "When parents and children engage in mutual interactions related to educational activities, particularly those interactions involving cognition and behaviors related to learning, parental involvement influences student achievement outcomes through parental modeling" (p. 109). In the virtual learning environment, this mechanism allows parents to be role models who can encourage students to persist with their lessons and achieve their daily, weekly, and monthly learning goals (Liu et al., 2010).

Parental Reinforcement

According to Hoover-Dempsey and Sandler (1995), parental reinforcement can serve as a powerful mechanism for student success as parents reinforce behaviors that lead to successful academic outcomes. Positively reinforcing behaviors such as study habits and assignment completion early in a student's life can lead to independent repetition of those behaviors, and "appropriate parental reinforcement will increase the likelihood that children behave in ways important to school success" (p. 320). In the virtual classroom, Liu et al. (2010) translate this reinforcement to "the establishment of good learning habits during the online learning process such as high focus and persistence" (p. 110).

Parental Instruction

One of the key mechanisms for parental involvement in virtual learning is parental instruction. Student success is highly dependent on parental instructional engagement with students, and it "is specifically important for virtual schooling because of the lack of physical presence of teachers in the virtual learning environment" (Liu et al., 2010, p. 110). Parents

should engage students in conversations about their learning, know the content being taught, and support students as in-person learning liaisons.

Summary of Student, Teacher, and Parent Roles

Despite these changes in student, teacher, and parent roles, Molnar et al. (2015) conclude, "Virtual schooling has been around for approximately twenty-five years, but related research literature has not kept pace with its growth" (p. 31). Podoll and Randle (2005) argue that "Because online learning is not a traditional educational setting, students and instructors need to think outside of the box" (p. 17). While traditional learning is best characterized by the relationship between a teacher and student, virtual learning depends on the symbiotic relationship between teacher, student, and parent, each providing support to the others, both in person (parent) and virtually. Best practices in a virtual educational environment are still being developed, and further research is required to implement virtual learning effectively.

Positive Aspects of Virtual Learning

While some argue that virtual learning is not accessible, research has shown there are many positive aspects of virtual learning. Virtual learning is characterized by flexibility, convenience, and availability. Virtual classes are available for many students who seek a different type of setting for their education. Lynch (2016) notes that "Virtual learning is not reserved for only those that can afford it; 40 U.S. states have state-run online programs and 30 of those states provide statewide, full-time K-12 schools" (para. 6). In addition, course material and instructors are available to students outside of traditional school hours. Fedynich (2013) notes that "The convenience of online learning allows for fast access to instructors and peers in the cyber class" (p. 3). Although students must be proactive agents of their own learning, the

availability and convenience of virtual classes create a space for education beyond the brick-and-mortar.

Students enrolled in virtual learning environments enjoy flexibility in their schedules, a feature unique to online learning. In a survey of student satisfaction in an online environment, Podoll and Randle (2005) found that "Students in particular responded that they appreciated the freedom of choosing when to work on classes rather than having to work on them at a specific time" (p. 15). Learning can take place anywhere and at any time. In addition, students are free from inhibitions that might limit their engagement with course material. As Fedynich (2013) describes, "The playing field for communication purposes is leveled, because everyone in class can contribute" (p. 3). Referencing a study from the Illinois Online Network, Podoll and Randle (2005) note that "asynchronous discussions in an online course allowed the learner time to think and reflect on presented content material" (p. 15). Without having to produce an answer immediately, students are given the opportunity to reflectively respond and engage with course material.

Concerns with Virtual Learning

Ravitch (2021) argues that reforms such as virtual learning can be seen as "a purposeful effort to demoralize teachers and replace them with technology" (para 13). Virtual learning is entirely dependent on technology, and with that dependence comes a margin for error. Among several things, crashing websites, unstable internet connections, and user error may deter students from receiving instruction. Fedynich (2013) states, "As hard as it is to imagine these days, there are individuals that are less than adequately prepared for a technology-rich learning environment," and without the necessary technological skills, "the cyber classroom is a moot point" (p. 4). Tawfik et al. (2021) agree, highlighting "the developmental variability among K-12

students," which may hinder their progress online, "necessitating additional support" (p. 926).

Students who do not have access to technology also suffer. Fedynich (2013) also notes that "The lack of access either due to logistics or economic reasons, will exclude participants from the cyber class" (p. 5). Therefore, virtual learning is more difficult or even impossible for students with difficulties accessing or using technology.

Molnar et al. (2015) note the difference between virtual learning and fully virtual schools, pointing out that while virtual learning can "simply supplement and expand the courses available in traditional brick-and-mortar schools," fully online schools "are being used to expand school choice, concurrently advancing privatization, entrepreneurism and private financial investment" (p. 81). Ravitch (2020) agrees that virtual schools should be met with opposition because of the potential financial gain for private companies when they "do not need custodians, groundskeepers, lunchroom staff, librarians, social workers, and security guards; nor do they pay for water and heat and electricity," but they receive the same funds as traditional public schools which are required to budget for those costs (p. 153). Virtual learning has thereby become entangled in the debate over school choice, a fight which is currently polarizing educational discourse in the US.

While it is true that schools are still learning how to effectively implement virtual learning, it is an area that is still being explored. According to Garnham and Kaleta (2002), teachers must "acquire new teaching skills, such as learning to facilitate online interactions and assess student online learning" (as cited in Fedynich, 2013, p. 5). Students must be more active participants in their own learning, seeking help, finding assignments, and making deadlines. Tawfik et al. (2021) conclude, "The transition to online learning is difficult for all parties involved, in part because strategies and models used in face-to-face settings may not translate to

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the online environment" (p. 925). Ineffective training for teachers and support for students may be responsible for poor performance. Molnar et al. (2015) note there are "consistently negative findings regarding student and school performance" in virtual schools. However, virtual learning may still provide a viable option for educators and students. Utilizing the findings gained from my study illuminates structures and practices that virtual school leaders identify as key indicators of successful virtual school implementation, creating room for constructive criticism to improve virtual learning and its student outcomes.

Virtual School Leadership

Much like the differing roles and responsibilities of virtual students, parents, and teachers, the role of a virtual leader is different from one in a brick-and-mortar setting. While similarities between leadership in both environments exist, the current literature highlights concerns regarding training and experience and changing leadership roles. In the following sections, I will examine both of these concerns in order to connect the subjects of my study, virtual school principals, to the ultimate problem I am addressing with my research, the lack of input from virtual school principals in creating effective virtual school models.

Training and Experience

The roles of principals and administrators in online schools are similar to that of leaders in brick-and-mortar schools. Specifically, they are responsible for supervising teaching and learning, creating a school culture specific to a virtual environment, and providing professional development for teachers to grow and improve. Training and experience in online education, however, is not necessarily required. In a nationwide study surveying online charter school teachers and administrators, Gill et al. (2015) found that "Almost half (48 percent) of the principals of online charter schools had no prior experience teaching in an online environment"

(p. xvii). Citing this data, Molnar et al. (2019) state that this level of inexperience "raises questions about their ability to evaluate and provide instructional support to teachers," noting that "We know very little about the supply, recruitment, and preparation of virtual school administrators" (p. 110).

School administrator preparation programs do not provide training programs and field experiences to prepare virtual school leaders for the nuances of leading schools in an online environment. La France and Beck (2014) conducted a study surveying college and university program coordinators about pre-service K-12 administration programs and their preparation for virtual school employment. They found that "although a few innovative programs exist that host virtual school field experiences for their pre-service administrators, a staggering 91% do not" (La France & Beck, 2014, p. 181). In addition, La France and Beck (2014) found that "more than 75% of NCATE-accredited educational leadership programs have no plans to add such a field experience," indicating that the need for leadership training in virtual schools is not a priority for administrator preparation programs (p. 181).

The lack of training and experience for virtual school leaders creates a gap in what virtual school leaders must know in order to successfully run a virtual school. According to Quillici and Joki (2011-2012), "Online principals also have to know about online learning, they have to be invested in online learning, and they have to guide their teachers to adapt and change" (p. 155). In addition, "To serve as instructional leaders and evaluate effective pedagogy in virtual settings, leaders must have knowledge of online learning theory" (La France & Beck, 2014, p. 168). Without this core knowledge, virtual school administrators are left to apply brick-and-mortar leadership training to virtual environments and "may be unaware of the required skills set and thus may be ill-prepared for this job role" (Richardson et al., 2016, p. 219). La France and Beck

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(2014) conclude that "As learning continues to change and adapt in response to technological, pedagogical, and governmental forces, Educational Leadership programs need to embrace a diversity of standards and adapt to serve the needs of their students in an increasingly connected society" (p. 182). Richardson et al. (2016) echo this need for additional training, stating that "it is evident that pre-service educational leadership programs are not meeting the needs of modern, digitally infused schools, especially cyberschools" (p. 220). Until college and university programming is updated to accommodate leadership programs in virtual environments, administrators are left to figure out their virtual leadership roles on their own. These changing roles are addressed in the following section.

Roles

Despite the lack of specialized training for virtual school leaders, the role of administration in a virtual school is different from that of a brick-and-mortar environment. As Abrego and Pankake (2010) note, "successful PK-12 virtual schools cannot operate in a 'business as usual' environment" (p. 10). The same strategies for managing brick-and-mortar operations cannot all be synonymous with the virtual school environment. Even in discussions regarding early virtual schools, Beaudoin (2002) noted that "Leadership in distance education, as distinct from managerial functions in a variety of settings, is defined as a set of attitudes and behaviors that create conditions for innovative change" (para. 3, as cited in Stephenson et al., 2021, p. 23). In a qualitative study interviewing 28 virtual school leaders nationwide, Azukas (2022) found that "Most asserted that they did much of the same work as a brick-and-mortar leader, but that there were distinctive differences in the ways in which virtual school leaders engaged their work across various leadership domains" (p. 330). For example, communication with parents and students, engagement of students in learning activities, providing professional

development and onboarding for teachers, and instructional support and supervision all take different forms from the traditional brick-and-mortar environment (Azukas, 2022).

Changing school environments from brick-and-mortar to virtual involves a shift in focus for school leaders. In a qualitative study interviewing 18 virtual school leaders nationwide, Richardson et al. (2016) found that successful virtual school leaders must be flexible and adaptable, technology savvy, skilled in instructional leadership, and excellent communicators and collaborators. These primary role shifts for virtual administrators encompass cultural leadership, technology and curriculum management, and teacher evaluation and support.

Cultural Leadership

Building a sense of community is one of the most important aspects of school leadership in a virtual school. Whereas the school community in a brick-and-mortar environment is established through day-to-day events, in person interactions, and extracurricular activities, the virtual school leader must create community without in-person interaction. Abrego and Pankake (2010) note that in virtual schools, "Ultimately, the role of school leaders should be one of building organizational capacity" (p. 11).

Building a virtual community includes involving all stakeholders in the school community through virtual clubs, open house meetings, and events. Azukas (2022) found that "Virtual leaders had to develop strategies to promote virtual connections and relationships as well as have the ability to leverage technology tools to do so" (p. 333). In addition, communication and engagement with families must be a priority since they are the primary in-person support for virtual students.

In another recent study involving qualitative research gathering information from virtual school principals, building school culture ranked highly on the changing role of administrators.

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Stephenson et al. (2021) interviewed eight principals and three district administrators about their changing role from brick-and-mortar leadership to virtual leadership in the midst of the Covid-19 pandemic, and they reported that "When the principals we interviewed were asked to reflect on how their roles had changed following the transition to virtual learning, they emphasized the role of the principal in fostering school culture" (p. 24). Without students, teachers, and stakeholders in one physical location, it is difficult to embody one vision, mission, and culture to unify the school community. Stephenson et al. (2021) note that virtual school leaders must consider the community building functions of a brick-and-mortar school and apply those to a virtual environment in order to avoid possible conflict: "With more virtual and less personal contact, interactions run the risk of becoming purely transactional, and opportunities to celebrate successes may be missed" (p. 29).

Technology and Curriculum Management

Principals and administrators in a virtual school must also be well versed in technology and instructional methodology in ways that brick-and-mortar leaders are not. Partnered together, technology and curriculum management go hand-in-hand since most virtual schools employ readily designed curriculum and supplement with web 2.0 tools as intervention and differentiation methods.

Richardson et al. (2016) found that

Woven throughout the perceived differences between cyberschool leadership and brick-and-mortar school leadership is the notion that technology can transform how leaders interact with students; how leaders evaluate, supervise, and professionally develop their teachers; and how leaders operate on a day-to-day basis. (p. 219)

Technology, for a virtual school administrator, becomes a key component of leadership–

understanding how to use it in order to improve student learning and teaching pedagogy is

essential to successful leadership.

In addition to learning, engaging with, and implementing technology, virtual school

administrators require more focus on curriculum. Azukas (2022) found that "Almost all leaders

reported that additional training is required for the technology systems that they use to support

students such as learning management systems (LMS) and other types of Web 2.0

communication tools" (p. 333). Principals and administrators must deliver the training to

teachers in order to promote positive student outcomes. Stephenson et al. (2021) found that

virtual school administrators described "significant new responsibilities for helping their teachers

develop as digital educators" and "reported personally evaluating the digital content being used

in instruction" (p. 24).

Teacher Evaluation and Support

Evaluating and supporting teachers is a large part of any school administrator's job

description, but a virtual school administrator's approach must be different. Just as the role of a

teacher shifts in the virtual learning environment, the evaluator's role is also changed. Azukas

(2022) found that "Many virtual leaders viewed the teachers as facilitators of instruction and as

instructional support interventionists" (p. 334). Since virtual teachers are often instructional

facilitators and interventionalists instead of the primary providers of instruction, teacher

evaluations can focus on both synchronous and asynchronous instruction techniques. Azukas

(2022) reported that leaders assess "teacher online presence, rapport with students, student

engagement and participation, the quality of questioning, and the accuracy of content in

synchronous sessions," and in asynchronous observations, "leaders reported looking for and

assessing the turn-around time on assignments, feedback provided to students, motivational weekly updates, regular contact/communication, and instructional intervention" (p. 334). In addition, Gill (2015) found that "Almost two-thirds (64 percent) of online charter schools indicated that monitoring teachers' contact with students and parents is a responsibility of the principal" (p. 23).

Supporting teachers in the virtual school environment is also a key role for the virtual administrator. Azukas (2022) notes that "Many of the virtual leaders reported that the initial training and professional development for online teachers must be different than for those teaching face-to-face" (p. 333). Professional development involves more than the traditional best practices and procedures. Because many teachers are not trained in virtual learning, virtual administrators must engage teachers in online pedagogy and virtual learning theories, provide support with web 2.0 tools for teacher use, and help teachers manage their roles in a virtual classroom (Azukas, 2022).

Conclusion

The evolution of technology over the past 60 years has been entangled with education from its inception. While studies show educators need time and training to effectively utilize technology in a classroom setting, structural change to the educational system itself is needed to truly incorporate technological advancements rather than using them to reinforce archaic practices. One possible solution for this structural change is virtual learning–creating a new way of providing instruction that asks students to think outside of the traditional classroom box. With this reorganization, however, comes the rethinking of student, parent, and teacher roles, each working in partnership with the others with the common goal of successful academic outcomes. It is especially important for virtual school leaders to be knowledgeable, flexible, and adaptive to

the virtual environment, and their voices should be considered in the development of virtual school programs.

Researchers have identified positive and negative aspects of the virtual learning environment. While supporters praise its flexibility and convenience, naysayers tie virtual learning to educational privatization and school choice. Implementing successful virtual learning environments is difficult, time consuming, and requires much more planning than simply transferring brick-and-mortar teaching practices to an online format. This was exemplified in the emergency remote teaching required during the Covid-19 pandemic, where all teachers were forced to migrate to virtual environments with little preparation, structure, or training.

Leadership in virtual schools is different from brick-and-mortar schools, yet training and experience for pre-service administrators in virtual environments is lackluster. Virtual leaders must focus on community building in virtual environments, provide training in virtual pedagogy for largely unprepared teachers, and monitor student and teacher performance utilizing data-based discussions from learning management systems. Best practices, therefore, are gleaned largely from experience in the virtual education environment, and the position of virtual education administrator is constantly changing to meet the needs of each individual school.

In order to restructure the educational system around current technology rather than supplement the current system, successful practices for instructional, organizational, and effectiveness must be studied in currently operating virtual schools, and those best practices should come from within. Using this data in conjunction with successful practices established by leaders in the field of virtual education, successful virtual programs can be created that can at least be the equivalent of traditional brick-and-mortar schools. Through the lens of the E-Learning Systems Framework, a delicate balance of people, technology, and services must be

prioritized to ensure successful implementation of virtual learning. At best, the usage of

standardized practices for virtual learning gained by asking virtual school leaders can lead to a

technological revolution within the educational system itself, reshaping it for the 21st century.

CHAPTER III: FINDINGS

In this study, I interviewed five NC virtual school principals in two separate sessions to determine (1) their current perceptions of their roles and current practices within their schools as well as (2) their thoughts and reflections on how their current implementation compares to statewide recommendations after reading the "Study Group Results: Working Group on Virtual Academies" NCDPI report. In order to clearly answer my research questions, I have interwoven my own document analysis of the NCDPI report, and my analysis of the document is shared alongside the research participants' thoughts and reflections. For reference, I have also included a copy of the NCDPI report in Appendix B. My research questions were as follows:

RQ1: How do North Carolina virtual school principals describe their perceptions of their roles and current practices in the virtual learning environments they lead?

RQ2: How do virtual school principals perceive practices in their schools relate to the Virtual Academy Recommendations document presented to the NC General Assembly?

In the following sections, I describe the research participants and present the findings of my study, utilizing the E-Learning Systems theoretical framework to guide my analysis.

Research Participants

Utilizing the methods described in Chapter One, I identified five current virtual school principals who agreed to participate in this research study to examine current practices in virtual academies and provide input on the "Study Group Results: Working Group on Virtual Academies" report. The following sections provide an overview of each principal, their school, and their experience.

Participant 1: Andrew

Andrew served as the lead administrator for his district virtual academy through the Covid-19 pandemic in addition to serving as the assistant principal of a brick-and-mortar school. After schools reopened, he transitioned to become the principal of the virtual academy and has led the school for two years in that role. He has worked in education for a total of 20 years: 14 years as a classroom teacher and 6 years as an administrator. He has only ever served as a principal at the virtual academy that he currently leads.

Prior to becoming a virtual school principal, Andrew received no training on virtual learning, stating, "They gave me the keys to the school and said, figure it out." Andrew notes that the role of the principal in a virtual school was not one he was looking for:

> I didn't necessarily choose it myself. I was the individual in the county who had the skill set to be able to handle the technology and that's why they … they gave … voluntold me to do this job and make it work. And that's, that's what happened.

The virtual academy Andrew leads is a K-12 district virtual academy, accepting students from the entire state of NC. Students access course materials through the Canvas, Google Classroom, and Seesaw platforms and participate in live learning sessions through video conferencing tools. Teachers at Andrew's school work for the district in which the school is based.

Participant 2: Bonita

Bonita has served as a virtual school principal for six months, and the title was given to her in tandem with the role of principal at her district's Early College High School. Although she serves this dual role, both schools have separate school numbers and are considered separate

entities. She has 28 years of experience in education, serving as a classroom teacher for 18 years and an administrator for 10 years, all at the middle school level.

Bonita admits her virtual learning and teaching experience is limited to the Covid-19 pandemic when she worked in a neighboring state: "I think I got the majority of my … my training honestly, during the pandemic because you know, we were all virtual and so we did a lot of training." Like Andrew, the role of principal in a virtual school was not a role that Bonita pursued, but it was one that was required for the role of the Early College High School Principal: "I didn't choose it. It chose me because I'm the principal of the Early College. That assignment came with it … the Virtual Academy. So it was a two fold assignment."

Bonita's virtual academy serves only 15 students in grades 6-12 and utilizes a corporate contract with a virtual education provider. Students access course materials through the company's website, and teachers are employed by the company. Although this partnership takes pressure off of Bonita to manage virtual learning, she admits that she would like to know more:

> I need to be equipped more, so I think more of that training needs to be given so that I am able to assist my students better, to know exactly what's what… most of my training has come on the cuff, and I would like to be able to have more opportunity for that to just have formalized training so I can see everything.

Currently, she communicates with teachers via email and video conferencing when necessary and receives student performance reports, but all training, evaluation, and monitoring of teacher and student performance is handled through the company.

Participant 3: Chelsea

Chelsea has served as a virtual school principal for one year. She has 17 years of experience in education. This includes experience as a classroom teacher, technology facilitator

(TF), and assistant principal. Chelsea describes her preparation for becoming a virtual school principal as a culmination of previous training. However, Chelsea admits that while she had "online learning experience as a TF and, of course, teaching experience as a teacher and as an administrator, [she] didn't really get trained to be a virtual school principal."

Chelsea's school is a district virtual academy which is designated as a program of choice option for her district, where students submit applications for specialized schools outside of their traditional base school. She serves students in grades 6-12 throughout her district. Students in grades 6-8 receive virtual and in-person instruction, while students in grades 9-12 receive asynchronous instruction with optional virtual and in-person instruction or intervention. Students access course materials through the Canvas learning platform. Teachers from the district can be employed as either full-time virtual teachers or as part-time learning facilitators. This part-time educator program is popular in her district: "Those teachers love it because it's a chance for them to earn extra money in the time where teachers can't earn any extra money [and] they get paid based on how many kids they have on their caseload."

Participant 4: Deidre

Deidre has served as the principal for her district virtual academy for the past one and a half years. She has 29 years of experience in education, 21 years as a classroom teacher and 8 years as an administrator.

Prior to becoming a virtual school principal, Deidre's only virtual education experience was during the Covid-19 pandemic's remote learning protocol. However, she was recruited as a virtual academy teacher during the pandemic prior to taking on the principal role:

I was voluntold to teach one of those classes three days before school started. And so

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what happened is all the children who didn't want to come to school, for whatever

reason, because of COVID, they didn't come but they were our schools' children. They

were from our school, but they were at home. So I ended up having about 50 some third

graders that year because I was the only third grade teacher doing it. And so that was a

rough year, but I learned a lot. And then the next year our district said, Oh, we're going

to start something called [a] Virtual Academy. And would you know, they were looking

for interest. And by the end I had realized, you know what, I kind of liked this because I

had better relationships with my kids because nobody was bothering me.

Based on her experience as a virtual teacher during emergency remote learning, Deidre decided

to remain in the virtual environment, taking on the role of principal when the position was

vacated in order to maintain the school's trajectory and avoid possible changes from an outsider.

Deidre's school is a district virtual academy serving students in grades 3-12. Students at

the district high school also have access to cross-enrollment options in order to take additional

courses or benefit from virtual instruction without committing to a fully virtual education.

Students receive virtual and in-person instruction from teachers within the district, and the school

partners with NCVPS to offer additional electives in an asynchronous format.

Participant 5: Elizabeth

Elizabeth has served as the principal for her district's virtual academy for the past three

years. She has varied experience in multiple areas of education including classroom teacher,

curriculum coordinator, assistant principal, principal, and district testing coordinator. In all, she

has 22 years of experience in education.

Prior to becoming a virtual school principal, Elizabeth discusses her lack of experience

and training with virtual learning, stating, "I always have enjoyed technology, so I have always

just learned technology like, like I knew Canvas … But as far as formalized training, like none."

However, she was interested in pursuing the virtual school principal position due to her

experiences during the Covid-19 pandemic: "I enjoyed succeeding in the virtual during COVID

and building relationships and helping teachers and I like technology so that's why I took it. I

liked the challenge."

Elizabeth's school is a district virtual academy serving students in grades 4-12, and she

also supervises a cross-enrollment program for high school students currently enrolled in the

district's only secondary school. Students receive instruction through the Canvas learning

platform from teachers employed within the district. Instruction is delivered through both virtual

and in person options.

Participant Summary

Overall, the research participants share many similarities and differences in their levels of

experience and the basic setups of their schools. However, Bonita is the most significant outlier

within this pool of research participants, and her experience differs so drastically from those of

the other participants due to the nature of her school. Unlike the other research participants,

Bonita serves in a dual role as the principal of a district virtual academy as well as the principal

of an early college high school–two separate schools with separate school codes. Though she

technically qualifies for the study as a principal of a virtual school, her virtual academy duties

are limited because of the district's choice to engage a virtual education provider to house all of

the responsibilities for virtual instruction. This outlying practice should be noted prior to any

analysis of the collected data.

The following sections reveal the findings for each of the research questions, beginning

with the principals' perceived roles and current practices. Utilizing the E-Learning Systems

theoretical framework as a guide, I will first show the level of involvement principals play and the focus for their current schools on the people, technology, and services in order to better understand the balance of their e-learning ecosystems.

Research Question 1: Principals' Perceived Roles and Current Practices

I asked current virtual principals about their perceived roles and current practices within the first interview. Overall, four out of five research participants agree that the position is difficult, challenging, and requires more skills than a principal in a brick-and-mortar school. Three of the participants describe having to wear many hats on a daily basis to be successful. Elizabeth notes that a virtual school principal must "have a mishmash of a background and be able to do a little of everything," and Deidre adds that the job is "not as easy as you would think." The pressure to perform in such a new, innovative position places a lot of pressure on all of the principals, and the need to take on more responsibilities intensifies. Andrew discusses his frustrations with misconceptions about his job:

> A lot of people think it's easy, and that always frustrates me. I don't have a piece I don't touch. I don't have tech people. I've become that person. I am doing every single test cause, well, I … I've learned how to do every single thing. I can fix computers. I don't know how to fix computers. But now I've learned how to do that. It's … it's the thing that frustrates me the most is how people think, Oh, you're virtual, you know? That there's no problems. There's plenty of problems.

This misconception of the role of a virtual school principal is solidified in the scope of their responsibilities for maintaining the school, supporting students and families, and coaching teachers. As Elizabeth notes, the job of a virtual school principal is "more of a workhorse" than a figurehead.

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In this section, I explore their reflections through the lens of the E-Learning Systems framework in order to provide a roadmap for the e-learning ecosystem. As described in Chapter 1, this framework identifies a virtual learning ecosystem of symbiotic relationships between people, technology, and services. I found a large imbalance in roles and current practices as shown in the large amount of time and effort principals must dedicate to people over technology and services, and that is demonstrated in the uneven and overwhelming data presented in the following sections.

People Dominate the Principal's Role

All the principals interviewed are involved in supporting and identifying people who could contribute to the success of the virtual school ecosystem. According to the E-Learning Systems theoretical framework, people in a virtual environment include all of the stakeholders who interact with the system, and "all of the stakeholders play an important role within the e-learning system activities" (Aparicio et al., 2016, p. 299). The overwhelming majority of tasks and responsibilities identified by principals fall into the category of people, revealing that principals spend a large amount of their time with stakeholders. This is an indicator of an imbalance in the e-learning ecosystem. The following sections describe the numerous ways each virtual principal perceives the support, recruitment, and retention of people in their virtual school.

Recruitment

Unlike traditional brick-and-mortar schools, virtual academies are a niche school offering that parents can choose for their children. Virtual school principals are tasked with finding potential students to enroll in order to keep the school running, essentially seeking out new stakeholders in order to maintain the viability of the school. Part of this task is speaking with

parents and providing information about the benefits of the virtual school environment. Andrew admits that "that's a large part of the managerial side of my job is to talk to families about virtual learning." All of the research participants describe conversations with parents to find the reasons why virtual learning might be a benefit for students. Elizabeth describes the varying angles to present to parents when recruiting students to the school:

Like if your family wants to go to Walt Disney World next week, and your students take their Chromebook and do their classes in the morning and y'all go hang out with Mickey, you can. And I've got a high school student who is getting into baseball … he logged into my high school class from Taiwan a couple of months ago. So if you've got some unique situations at home, like where you travel a lot, this is a great option.

All of the principals interviewed discussed how they leverage the flexibility offered through virtual schools to recruit students. However, many of the principals also discuss the dangers of overselling the virtual environment. Chelsea notes, "I've learned the hard way … I'm not here to sell this to you to get numbers. I'm not here to get money … I don't work for charter or private. I want to do what's best for kids." Walking the fine line between selling the benefits, helping families understand the commitment, and thinking about how enrollment dictates the viability of the school itself is a challenge all of the interviewed principals face.

The majority of principals reported concerns with making the numbers they need in order to keep their schools afloat. Deidre discusses the pressure of recruitment and the sustainability of her own position:

And every year it kind of hangs over our head. If we don't have 100 students, then we won't be a school or there won't be a, you know, a position for me or, you know, that's a

little that's not something that a typical principal has to worry about. So, every year we

are faced with that every spring. We are faced with that.

Outside of the typical stressors of leading a school, virtual school principals have to think about how to draw in families that traditional schools may miss due to scheduling conflicts, personal preference, or medical concerns. Bonita describes limitations from the district itself in providing slots for student enrollment. An outlier among the other candidates because of the paid partnership with a virtual education provider, she describes the district providing a select number of slots and having to fill them. While the numbers are dictated by the district, Bonita's task in finding those students limits availability for the virtual school option. Elizabeth prides herself on her ability to draw in homeschool students who typically would not choose a district school, noting that she can pull in five or ten homeschool families per year. In order to maintain the school itself, principals have to seek out new people to add to the list of stakeholders through recruitment. In addition to recruitment, principals also have to advertise, as shown in the following section.

Marketing

In order to secure more students, many of the principals turn to marketing tactics to increase visibility and pull in potential students. Andrew utilizes community events to increase exposure for his school: "I go out in the community constantly and advertise … I go to the parades. I've got to do three parades in the area … I have a sign that I walk around with just to get the name out there so they realize that there is an option for their child." Elizabeth utilizes tools such as social media marketing, paying for the service out of her own pocket. Deidre notes that "We put out signs and we have to tell our story" in order to draw in new students and supporters, but she struggles with this task. In a perfect world, Deidre wishes her position was

not as focused on recruitment and marketing: "we would have more students and more people would know about us and I would not have to be an advertiser because I'm not good at I'm not good at marketing." Similar to what principals experience with recruitment efforts, marketing becomes a priority in order to secure new stakeholders and increase student numbers. Unlike a traditional school where enrollment is almost guaranteed, virtual school principals need to constantly focus on attaining new people to add to the ecosystem in order to survive. Constantly adding new stakeholders to the e-learning system contributes to the dominant role of people within the ecosystem.

Community Outreach

In addition to recruitment, virtual school principals must create partnerships with community stakeholders in order to obtain resources and bolster instructional programming. Chelsea and Elizabeth describe reaching out to public school libraries and local 4H clubs to host events and diversify their virtual programming with in-person events. These partnerships rely on the trust from the community, a belief that virtual learning is a viable educational option. As all of the virtual schools in this study are new to their communities and with the overall negative perception of virtual learning post Covid-19, building that trust can be challenging. Chelsea believes her community is more accepting of her school, garnering her more support:

> I feel like [my county] has always been a little bit more progressive. And a little bit ahead of the curve, especially when it comes to technology and kind of finding creative solutions. Doesn't mean we don't have our problems. It doesn't mean we don't have barriers and people that think, oh, virtual learning, that'll never work. But I feel like as a whole, our community is a little bit more forward thinking and willing to try some things out.

Community partnerships such as these can increase the success of a virtual learning community, because they serve to support and increase opportunities for growth within the ecosystem. Further, this can increase the number of stakeholders who are vested in the success of the school, and securing those partnerships is the responsibility of the principal.

Seeking Support

Three of the five principals reported that their job requires support from peers, district leaders, and educational resource providers in order to learn, grow, and succeed. Elizabeth and Bonita describe seeking advice from other virtual principals, brainstorming the unique situations that arise in a virtual learning environment. Bonita expresses the need for this support because there are no other partners who have that experience: "I don't have … like … people in that building I can literally go to and say, so what did y'all do about this." The virtual environment and lack of other district partners who are in the same role forces relationships with other virtual school principals in neighboring districts.

Some of the principals also seek support from district representatives in order to fill support staff positions. While some support staff are needed to provide services for students in the school, funding for full-time support staff may not be available. Elizabeth describes finding partners within her district who are willing to support her school in addition to their regular duties:

> Like, you know, for example, I didn't have a counselor going into this year because we lost our grant, and so the person that oversees all the counselors goes, I need to assign you somebody. I said no, no. I have a couple in mind. Let me go ask them first. Because I wanted them to know; I wanted them to be a part of what we were doing. And I valued

them, and then I could answer better questions about what I need and what that's gonna

look like for virtual.

Utilizing this method, she has secured a media specialist, a counselor, and a technical support

person who can help her with programming and troubleshooting. She has also worked with

district professional development partners to create individualized sessions for virtual teachers,

asking them to tweak their current offerings to meet her needs.

Deidre also describes seeking out support from district representatives in order to get the

resources needed to make virtual learning successful in her school. When faced with the inability

to purchase a subscription to a digital learning tool, she approached her federal programs director

to ask for funding. Due to the size of her school, the company providing the digital resource

would not agree to provide a subscription. Capitalizing on this partnership with district leaders,

Deidre was able to secure the subscription for her students.

Whereas support measures are typically built into a traditional school, virtual principals

work tirelessly to find district leaders, peers, and educational resource providers to form

partnerships. The element of people, as seen in recruitment and marketing, is not the typical

stakeholder relationship found in traditional schools. Principals in this study do not have to

simply maintain stakeholder relationships; they have to constantly seek out new people and push

them to help provide essential support to keep the school alive.

Teacher Support

Virtual school principals, like brick-and-mortar principals, are largely concerned with

supporting teachers, key stakeholders in any learning environment. However, in a virtual school,

supporting teachers means taking on additional roles in order to relieve the pressure exacerbated

by the virtual learning environment. Elizabeth describes changing her leadership role to more of

a doer rather than a thinker when faced with tasks normally given to teachers: "I can either put all those hats on the teachers and me be the leader I need to be, or I can take some of that off them so they can truly build good curriculum and focus on ELA and math." Throughout the interviews, principals emphasized two main areas of teacher support as major priorities in a virtual school: leading professional development and evaluating and observing teachers.

Leading Professional Development. In a fast-paced, ever-changing, newly constructed virtual learning environment, keeping up with the pace of advancements is crucial to providing effective instruction. Providing professional development for teachers is one way to keep them up to date with the constantly changing landscape of virtual learning. Districts may not always have the resources and support to provide the individualized professional development required in a virtual environment. Andrew notes that while professional development for virtual schools is accessible, "it's not kept pace with the growth of online virtual schools in North Carolina … I think it's growing. It's just not there yet." Deidre shares that while her district did provide paid memberships to a virtual learning support organization their first year of operation, "Our district does not provide anything." In other words, Deidre's district did not do their own, context-specific professional development for educators in virtual schools.

Virtual school principals, to fill the gap in professional development options from the district, seek out opportunities and create programs tailored to their school's needs. Deidre describes utilizing walkthrough data to focus mini-professional development sessions for her teachers because her needs are different from what other brick-and-mortar schools in her district may need. Chelsea and Andrew seek out opportunities offered by NCDPI and QM to provide insight on instructional strategies that work in virtual environments. Chelsea utilizes funds from

a county grant to offer in-person training from a virtual learning expert who comes every two months with programming for teachers.

Observing and Evaluating Teachers. My analysis showed that all principals in this study, with the exception of Bonita who does not conduct observations, placed significance on observing and evaluating teachers, mainly because of the virtual learning environment and its challenges for both students and teachers due to the lack of a physical space. Chelsea notes that observations are easier in a virtual school and that they get a more accurate picture of learning. Chelsea said, "it's really easy for me to go in and see day by day what the kids have been doing. Where in a traditional school, I can't walk in a classroom and tell what they did yesterday." Deidre utilizes this additional information to create personalized feedback for teachers, on both what is happening in a live teaching environment and in the Canvas course: "I'll send them a video or I'll coach them, I'll model it for them." Similarly, Elizabeth describes the benefit of having her virtual teachers in her new building this year, allowing her to observe teachers teaching but also seeing their perspective in the video conferencing platform:

> I can go to their office and sit in and see really from their perspective what they're doing. I'm looking to see … also when I'm doing an observation, I'm looking in their Canvas course to see if what they're doing is posted there. Is it clear? Can the students know the instructions later for the assignment? So I'm kind of looking at two things. I'm looking at both the teaching portion and what they're doing, but I'm also looking at the student assignment and what's going on later.

The benefit of being able to access longitudinal course data in tandem with live lesson delivery provides virtual principals with more data to shape their evaluations of teachers; in turn, this provides more opportunities for growth.

While teacher support is an area all principals are concerned with, the virtual school principals in this study emphasized their support in terms of their virtual learning environment. Their efforts to provide support centers on the uniqueness of their school, and personalization, whether in the form of evaluation or professional development, is a priority. All of the principals make extra effort to support teachers within their virtual learning ecosystem, and they recognize that teachers are a primary stakeholder.

Family Support

Most of the principals in this study reported that they valued and were committed to connecting with families. In their roles, they also provided support as instructional coaches. All principals describe creating informational support materials for parents, and they all describe answering questions via phone or email to support the parents' roles at home. Bonita describes phone calls with parents as essential to forming relationships outside of the digital sphere, connecting with them so they have a local advocate in addition to the support given by the virtual learning provider. Elizabeth details how she created a parent-to-parent partnership with her families by assembling a parent contact list:

> What happens is our families have become partners with each other, and they figure out their work schedules and like I've got … I've got like, I already know, a group of four kids and their parents kind of take turns bringing them to stuff. [...] what's cool about that is I'm helping them network in like a homeschool association to where they can have in those groups meet up and hang out outside of school, you know, without the school being involved.

Elizabeth also provides in-person parent sessions to teach parents about their role as learning coaches, showing them how to access information and helping them understand how they can

best support their student. Spending extra time supporting parents is necessary for the virtual school principal in order to create a partnership between home and school. This extra step helps maintain a more strengthened stakeholder relationship with families.

Student Support

Principals also described their responsibility to provide support to students. Specifically, this referred to the fact that while teachers handle instructional support communication, principals support students with whatever else they may need like technical support or guidance for students struggling in the virtual environment. The virtual principal becomes the support contact for every student, no matter the request, taking on a role traditionally filled by a team of support staff in a brick-and-mortar school. Juggling this extra responsibility on top of the other stakeholder relationships adds an additional layer to the support of people. The most frequently mentioned student support measures are personalized support and flexible enrollment.

Personalized Support. Virtual principals provide personalized support to students to build relationships and troubleshoot problems they may be experiencing in a virtual environment. Chelsea, Andrew, and Elizabeth all report driving to a student's home to help with technology, visiting a student's home when he/she is not attending live lessons, or even picking up a student to take them to a school event or field trip. Deidre reports meeting virtually with students in small groups to foster relationships and create accountability partnerships:

> I have quite a few new young mothers this year. And so I met with them. We have a little
> meeting at least once a month to just talk and get ideas and I was helping. One is very
> successful, one is not … just with this particular meeting. And I was getting one to help
> the other one, so we planned out what she could do on Saturdays and Sundays to get up
> with her work.

In this quote, we can see that Deidre utilized these personal connections between students to provide a structure of support at home, which was exemplified in the small groups they developed. Bonita sends out cards to celebrate student successes at the end of each semester so that her students know she is supporting them from afar. These personal touches are necessary to keep students connected to the school ecosystem.

Flexible Enrollment. All of the virtual principals report that another important way to support students is to make determinations about their proper placement. Bonita, although she is limited in her slots for enrollment, utilizes her dual role as the principal of the Early College High School to advocate for students she sees struggling in the brick-and-mortar environment:

> I have a young lady now who was really struggling socially, emotionally. And I really want to take her in, and so I have two students graduating. So I've been in bargaining. Can I have those two slots, you know, and use one of them for her for second semester to get her back on track? So I've been working on her behalf to get her in.

Conversely, the other virtual school principals see students struggling in the virtual learning environment and, when all else fails, support them by sending them back to a brick-and-mortar environment where they might be more successful. Despite the funding ramifications of unenrolling students, Chelsea believes that "it's educational malpractice for me to allow them to stay here and allow them to fail." Elizabeth notes that despite the commitment families make to enroll in her school she will not hold them to that commitment if it means the student will have more opportunity for academic success in a brick-and-mortar environment. Andrew adds the importance of flexible enrollment as a final intervention for students:

> We have the ability if a student is really struggling in the virtual environment and is not for them, then we work to get them back in the building too. So this is not you're stuck in

this thing, and you're going to suffer, and you're going to fail if it's not being successful.

We target early on. We try interventions, and then we work to get them back in the

building.

Doing all they can to meet the needs of students sometimes means pushing them back into a

brick-and-mortar environment for their own good, and a virtual principal makes those decisions

in the best interest of students and families.

The research participants in this study indicated increased attention needed to support

students in their roles as virtual principals. Providing support typically delivered by school

support staff, these principals are instrumental in reaching out to students and helping them with

their needs, both academic and social. The increased attention principals need to give to

supporting students is indicative of their importance in the virtual learning ecosystem.

Building Community

According to all participants, building a successful virtual school means building

community among all stakeholders. Elizabeth describes building community through a daily

morning meeting with all students in the school. Students are grouped by grade level and

teachers of all levels take turns leading the meeting, and the meeting is focused on social-

emotional learning, celebrating student birthdays, and other non-academic topics. Chelsea

describes building community through her in person days with students where teachers are

encouraged to implement "very flexible, creative" lessons and activities. Andrew hosts

community meetup events where students and their families are invited to come and play outside

of the learning environment. All of these ideas promote a schoolwide community, which

participants attribute to the success of their schools.

Supplementing Funding

All principals in NC function as budget managers, but virtual school principals are responsible for raising additional funds because their allotments are microscopic compared to brick-and-mortar schools. Elizabeth describes writing grants, applying for ESSER funds, appealing to district budget managers, or relying on local organizations for donations in order to fund some of the activities she offers to students outside of their typical virtual learning environment. Chelsea, Deidre, and Bonita all discuss the struggles of finding money to supplement their schools. Deidre shares her allotment for the year and the need for additional funding: "We have very little money. When I say very little, at the beginning of the year my allotment was $2,341. That's not a lot of money." Similarly, Chelsea struggles with the lack of funding available for her school:

> Since our schools are usually very small, we don't get a lot of ADM money. So then it's kind of hard when you don't have a lot of money. It's kind of hard to grow because you don't have any money to recruit or for marketing materials. I've struggled getting a PTSO up and running, which we do have now but they struggle to earn money or raise money.

Based on the average daily membership (ADM), funding for public schools is dictated by enrollment and attendance, which is a struggle for small virtual schools. Bonita, discussing her district's decision to provide virtual learning through a corporate provider, notes that this partnership is required in order to save funds by not utilizing district teachers: "I just don't know that that's feasible. Financially where we are." Chelsea shares that the lack of funding is a source of frustration: "Even though I teach kids all across the district, I only get money for the kids that enter into my [school]. So that's been a little interesting, navigating money." While funding is a

concern for most research participants, the solution always comes back to people–forging new relationships with stakeholder partners to supplement limited resources.

Based on my analysis, people are a major priority for virtual school principals. They utilize much of their time dedicated to people–finding new stakeholders (students, community members, district leaders) and supporting invested stakeholders (teachers, students, and families). With an increased focus on people, principals are constantly juggling the needs of all stakeholders and potential stakeholders in order to keep their schools afloat. This increased focus on people leaves little room for the areas of technology and services.

Technology Implementation is Limited

Although the role of technology in the virtual learning ecosystem may center on the use of hardware and software, Aparicio et al. (2016) propose that technology is more than that. As discussed in Chapter 1, technology encompasses the delivery of instructional materials, separate from the actual instruction itself. When virtual schools focus on technology, this means a focus on content, communication, and collaboration.

Based on my analysis, all of the principals with the exception of Bonita described a strict focus on communication and collaboration as a main priority in their virtual schools, and content is deemphasized because each school uses the NC Standard Course of Study as its requirements. However, as shown in the section above, people take up a vast majority of time and attention for principals, and the time left for focusing on technology is limited. The following sections discuss the perceptions of virtual learning in their schools that can best be attributed to technology.

Engagement

All of the principals who observe and evaluate teachers noted that student engagement was the number one focus in observations. They emphasize the interaction between teachers and

students, avoiding what Deidre calls being "the sage on stage." Similarly, Andrew looks for engagement through measuring student-teacher interaction: "is the teacher talking with the kids and are they engaged back and forth?" Chelsea reports that she encourages teachers to have more digital confidence, "A little bit more willingness to let kids go out on their own and work and not feel like they have to be as tethered to the screen," but this is hard in a virtual environment because "You feel like you need to keep your finger on them." Elizabeth echoes the importance of releasing control, sharing advice with her teachers to help them manage the virtual learning environment:

> They are out of control. The teacher… because in virtual you, you can't control that student's environment. You can't control them because they're not your classroom. They're in their home. You just can't control so many factors that you could control in a classroom.

All principals noted that encouraging student discourse increases engagement in the course material. Elizabeth notes that some of her teachers struggle with increasing student discourse:

> It's so easy even as adults to get in and go okay, I've only got 45 minutes to an hour and I've got to get this in. And I don't think they realize how much they're talking. And that's a big thing I've been noticing this year with the "with it-ness."

Unlike the brick-and-mortar environment, it is harder to provide a platform for students to talk about course material, but creating ways to make this happen through breakout rooms and thoughtful lesson planning is worthwhile. Utilizing technology to enhance communication and engage students is a priority for principals.

Cameras On

All participants agree that mandating their students keep their cameras on during live lessons is essential to positive learning outcomes. Seeing student faces and expressions is one way to close the distance between students and teachers which participants described as a barrier to virtual learning in general. This use of technology, like elements designed to enhance communication and engagement, signals a focus on content delivery that creates a virtual bridge between student and teacher.

Live Academic and Organizational Support

While all of the participants, including Bonita, discuss providing a multi-tiered support system (MTSS) for struggling students, they also describe providing interventions in the form of live virtual meetings. Elizabeth describes differentiating academic and organizational support for students, isolating what students need and providing guided support to help them. Even Bonita reports that the virtual learning provider offers virtual tutoring sessions to support struggling students. Principals value live virtual meetings in order to deliver instruction as a technology tool in the virtual ecosystem.

Live Virtual Instruction in Small Groups

All of the principals identify live virtual instruction as necessary to successful learning in a virtual environment. However, the majority of principals agree that finding ways to get students into smaller groups is the key to engaging them. Andrew talks about the benefits of small group instruction:

> We feel that live instruction face to face with the teachers is 100% the most effective
>
> way. However, it's more than just that. We also find because of the way virtual learning
>
> works, and how the technology is kind of a barrier, that the more that we can get three or

four kids to one teacher, and then we rotate throughout the day, the better off our kids do.

Not that we don't do whole group instruction, but it's not as effective because only one

kid can answer utilizing the technology.

Utilizing options such as breakout rooms creates smaller group settings for students to work

collaboratively and forces them to participate when they may get lost in a larger setting.

Principals emphasize technology usage to break down larger groups of students into smaller

subgroups as a way to better deliver course content.

Overall, principals describe the use of technology to deliver content, communicate, and

collaborate as important. However, their focus on technology within their interviews is limited.

Many of the principals noted the importance of utilizing tools for engagement such as live

sessions, camera-on requirements, and small group settings, but their breadth of discussion in

reference to these tools was not as lengthy as those related to the people they serve and seek out.

Based on this lack of depth, I find that while technology usage is a priority, it is not given the

same time and attention given to the area of people, signifying an imbalance in the e-learning

system described by Aparicio et al. (2016).

Services are Trial and Error

The services provided by a virtual learning system can be described as the pedagogical

models and instructional strategies that "integrate all the activities" provided in the virtual

learning environment (Aparicio et al., 2016, p. 301). Like the integration of technology, this area

was not mentioned as much as the role of people in the virtual learning ecosystem. Bonita, an

outlier in the data due to her partnership with the virtual learning provider, did not provide

information regarding these services due to the fact that she does not oversee the instructional

environment. The remaining participants described the trial and error nature of developing

instructional strategies within the virtual platform. The two main areas of services are development of instructional practices and the utilization of instructional tools.

Development of Instructional Practices

All of the virtual principals agree that the development of successful instructional practices in their schools is done through trial and error. Principals describe creating, implementing, assessing, and recreating strategies for in person sessions, virtual lessons, and course materials. When faced with an instructional challenge, virtual principals and instructors innovate, research, and implement new strategies to seek better results. As Chelsea notes, this constant reevaluation process has helped improve instructional practice: "we've kind of learned as we've gone through what works and kind of what doesn't."

However, Elizabeth discusses a strategic approach to developing instructional strategies, led by a district-wide initiative. Utilizing the district's instructional framework initiative, Elizabeth prioritized basic structures before focusing on instructional strategies, but her work continues to follow the model all of the other schools in her district are implementing. An outlier among the participants, Elizabeth connects the development of successful instructional practices in a virtual environment with those in brick-and-mortar environments.

Despite the need to incorporate innovative instructional practices and pedagogical approaches in a virtual environment, principals' descriptions of trial and error practices indicate a possible lack of time to research and develop them. Instead of researching and developing new ideas in their virtual setting, principals have to implement, revise, and reimplement because their schools were opened before a set pedagogical plan was put in place. In this case, services are constantly shifting because of a lack of planning and research prior to implementation.

Utilizing Web 2.0 Tools

Many principals mentioned the use of live instructional tools such as NearPod, Google Docs, or PearDeck to watch students as they work on a problem or activity. All of these examples are web-based 2.0 tools that encourage interaction between teachers and students, and while they may seem like technology, they are described as learning activities and methods to measure learning. Deidre notes that "anything that you can see them doing live [is] valuable." While Elizabeth admittedly does not use these specific tools, she discusses how her teachers use Securely, a platform that allows teachers to see what students are writing in real time:

> I know the math teacher will have them… she'll say everyone type in Securely what
> you're getting as your answer. So she can then see everybody's answer without [having]
> to build a Google form. It's right there in that moment … [Another teacher] can watch his
> 10 Kids annotating something right on his screen. And he knows who's struggling.

Principals' descriptions of the use of Web 2.0 tools in their schools function as instructional strategies that integrate course content with teaching and learning, and their schools' usage of them has been developed over time with basic trial and error tactics.

Summary of Roles and Practices

Through the analysis of principals' responses, I found that the vast majority of principals describe their current roles and practices as a focus on people more than technology and services. The depth of their descriptions involving actively supporting stakeholders, seeking help from stakeholders, and finding new stakeholders to maintain the viability of their schools indicates a large majority of principals' time is spent thinking about those stakeholders, leaving little time to dedicate to technology and services. This imbalance between people, technology, and services contributes to an imbalance in the e-learning ecosystem proposed by Aparicio et al. (2016),

making the role of principal in a virtual school difficult. I discuss this imbalance further in Chapter IV.

In the following section, I answer my second research question to determine principals' perceived connections between their current practices (the information discussed in this section) to policy recommendations from NCDPI. Although I divert my attention from a more guided approach to E-Learning Systems Theory to a more indirect application, the framework is still used to guide the discussion of the findings in Chapter IV.

Research Question 2: Perceived Connections Between Practice and Policy

To answer this research question, I conducted a document analysis and paired my analysis with the principals' responses. At the end of the first interview with research participants, I shared a digital copy of the "Study Group Results: Working Group on Virtual Academies" (NCDPI, 2022) as a primary document for participants to read and reflect on before the second interview. This document was created by a statewide team of virtual learning stakeholders in order to provide recommendations for virtual academy policy for the NC General Assembly to adopt. I asked each participant to think about the document as it relates to their current practice and be prepared to discuss how they feel their schools measure up to the expectations set forth by the document.

Principals' first impressions of the document were mixed. Andrew, Chelsea, and Deidre reported they had never seen the report before I gave it to them, but Bonita and Elizabeth both stated they had seen the document and used it to develop systems and structures within their schools. Many of the principals made interesting observations about the report prior to commenting on their school's current practices. Elizabeth notes that the reason for the report is directly related to the Covid-19 emergency remote instruction: "They're trying to make sure that

what happened in the summer of 2020, didn't happen again. Where schools just threw it all together." In addition, principals noted the expectations for virtual academies were realistic, but several mentioned that they couldn't imagine full implementation due to funding restrictions, discussed more fully in the analysis below. Deidre notes that overall, she feels the guidelines are about 85% realistic:

> The state likes to, as you well know, they like to put forth these things that say everyone should do that, but they're not saying how they're going to do it. And when I have a budget of $2,341 for the year, I'm not going to hire anybody else. And I can't buy books for everybody else and I can't buy the latest and greatest in technology. So I just stretch it the best that I can.

Many of the virtual principals echoed the same reservations, especially when noting the required support staff. These concerns are addressed in the analysis below, but they indicate an overall agreement with the recommendations with hesitations and concerns regarding their real-world implementation.

It is important to note that Bonita, an outlier in the research participants, did not have much information to offer in regards to her school's current practices in comparison to the report. She mainly manages a small group of 15 students as they work through the assignments and activities provided by the virtual education company her district has agreed to contract with. While her voice is heard in the areas which apply to her role, her missing voice in other areas can be explained by the difference in the role of virtual school principal as designed by her district.

My findings for this question are categorized by the recurring themes found in participants' responses and supported by my document analysis. These themes address the gaps participants found within the report as it pertains to their experience as virtual school principals.

The Working Group's Missing Voices

While not directly related to the research question, principals made a key observation regarding the Working Group assigned to create the virtual academy recommendations, and I believe their insight regarding this team should be noted here because it verifies the need for their input on the group's recommendations. The Working Group was co-chaired by Dr. Michael Maher and Dr. Vanessa Wrenn who identified as NCDPI and NC Virtual Public School representatives to complete the required report as dictated by *Senate Bill 654*. This team identified external stakeholders who "work in the field of virtual instruction, have extensive knowledge and experience in one of the report requirement areas, or have children served by a virtual academy" (NCDPI, 2022, p. 4). While many of the principals observed a large variety of committee members with varying levels of experience in virtual education, Andrew noted a discrepancy in the members and their titles:

> I don't see almost anybody who's directly involved in the school itself. There's a few there, but they get out-weighted by people who... who, who probably have no real connection to the actual teaching that's happening in there. So I feel it's top heavy, very top heavy.

Table 3 provides a detailed list of Working Group members including their names and affiliations.

In my analysis, I can tell that virtual school principals were not included in the creation of this document. Although leadership representatives from virtual schools were selected, principals from virtual academies were not chosen. The only school-based leadership roles include Chief Academic Officer (NC Virtual), Head of School (NC Virtual Academy), and Chief Executive Officer (NC Cyber Academy), all representatives of schools which were established before the

Covid-19 pandemic. None of these schools are district virtual academies even though 61 full

time virtual academies and 45 hybrid virtual academies were in operation during the 2021-2022

school year (NCDPI, 2022, p. 3).

Table 3. Working Group on Virtual Academies Member Affiliations

Affiliation	Number of Representatives
NCDPI Directors/Deputy Directors	7
Virtual School Leaders	3
District Superintendents	3
Virtual Teachers	3
District EC Directors	3
State Board of Education Representatives	2
NC Virtual Directors	2
NCDPI Section Chiefs	2
District Technology/Virtual Learning Directors	2
Virtual Learning/Evaluation Consultants	2
NCDPI Research Analysts	1
Charter School Principals	1
School Psychologists	1
University Professor	1
Parent of Virtual Learning Student	1
Chief Executive Officer Charter School	1
District Chief Academic Officer	1

Note. Data Source: NCDPI (2022), pp. 4-5.

Interestingly, three principals also recognized names from the list of committee members.

Elizabeth works closely with one of the committee members and noted, "that person never asked

me, you know, never had a conversation or I never knew they were on this committee." In fact, none of the principals were aware of the committee's existence prior to seeing the report. Without the perspectives of current virtual principals, the Working Group is missing key stakeholder input in the creation of their recommendations. These missing voices may have shed more light on the day-to-day operations of a virtual school from the lens of leadership in both academic and operational fields.

Requiring Internet Service is Problematic

While most of the infrastructure requirements present little problem for the majority of participants, all of the virtual principals reported struggling with providing Internet access for students at home. According to the report, all students should have access to the Internet, and it should be "consistently available at a level of service and quality that broadband access does not present a barrier to virtual learning" (NCDPI, 2022, p. 6). There are no specific details provided to describe the type of Internet service provided except that it must be broadband and sufficient to access all course material and possible synchronous class meetings. According to these requirements, all students must be provided with sufficient access to the Internet regardless of where they live and what they can afford at the expense of the virtual school itself.

Four of the principals provide Internet hotspots for students, but even these principals report that some families still struggle. Deidre complains that the lack of service, even for mobile hotspots, is concerning: "Wanting everyone to have access to Internet is one thing; we cannot move their house." Bonita describes trying to provide more reliable Internet access for her students by supplying each student with an Internet satellite:

> Last year we tried a satellite system where the parent came and picked up a satellite and the parents were like, oh my god, I opened the box and there were 9000 pieces. Was this

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a test? I was like, I'm sorry. I really apologize. It was … it was funny and then the parent

would bring it back. Nothing was in the box. And there's all these cords. You see them

coming in the building. You see these cords dragging on the floor. That satellite didn't

make it. That was not … that's on the injured reserve list. … And so, but we could get

them back and we'd be like, now that didn't work well, so we left that system alone.

Despite the humor of the situation, the satellite system did little to provide reliable Internet

service, and she switched to mobile hotspots, which are more user friendly but not as reliable in

her rural area. Elizabeth states that the Internet service in NC is so unreliable in general that

providing mobile hotspots is moot: "I really wish I could require Internet. I know they don't

want me to hold anybody back. But it's gonna be a barrier we're gonna have to overcome all the

time." Instead of providing mobile hotspots, she works with families to utilize their current

Internet connections, teaching them how to reduce bandwidth and publicizes the use of her

building as a free Internet hub.

Principals all noted that complying with the report's recommendations to provide Internet

access to all virtual school students is a difficult task, especially in rural areas of NC. While the

report's summary of recommendations points out the "Broadband Gap" found in the state, the

recommendations leave little room for interpretation when it comes to providing Internet access.

Limiting a free and appropriate education in virtual schools only to those who can afford and

receive a broadband connection is not acceptable, but the solution involves infrastructure outside

the reach of education. This gap in technology further complicates the balance of the e-learning

system.

Is Seat Time Necessary?

Virtual principals agree with the majority of the listed requirements for instruction, citing evidence from their own schools to demonstrate compliance. However, principals disagreed on the distinction that seat time should not determine course proficiency. While the report mandates attendance reporting in accordance with "current state requirements related to the Principal Monthly Report and Average Daily Membership reporting per the Student Accounting System Manual," a separate bullet indicates that "seat time should not be required to demonstrate proficiency in a learned topic" (NCDPI, 2022, p. 7). According to the report, an attendance policy must be clearly communicated to families, but attendance cannot determine the success or failure of a student in a course.

Andrew and Deidre both expressed concern about the lack of seat time requirements. Andrew noted that elementary aged students are not fully able to complete coursework on their own, stating, "the younger they get the more I am excessively worried about their education." Similarly, Diedre had reservations about eliminating seat time requirements in virtual schools because she feels she is held accountable for attendance in her district: tracking daily attendance, sending out letters, and reporting truancy. However, Bonita, Elizabeth, and Chelsea agree that student performance ultimately determines proficiency, and student absences are demonstrated in their grades. Despite the disagreement, four of the virtual schools track attendance on a regular basis, collecting data from students during all virtual sessions and reporting that data as dictated by their district policies.

I found this seat time discrepancy between the participants interesting in understanding the gaps between the report and current practice. While the majority of participants track attendance and report excessive absences per their district's policies, the majority of them also

concede that course mastery is not determined by the amount of time spent in the course alone. Elizabeth notes her feelings are entangled with districts' enforcement of outdated practices:

> There's actually no seat time requirements for traditional schools. The state dropped that years ago. Some districts, including ones I've worked in in the past, have still enforced that. My mixed feelings are [that] the traditional schools aren't supposed to be holding on to seat time either. I mean, we really should be doing course mastery.

No other participant mentioned the state's removal of specific seat time for traditional public schools. The report's clear rebuttal of seat time as a demonstration of mastery, however, aligns with current statewide requirements, despite the fact that participants felt seat time was still an enforceable mandate.

Personnel and Professional Learning are Limited

All of the virtual principals in this study report having access to the majority of the required support personnel in the report. Requirements for personnel closely follow the regulations for traditional brick-and-mortar schools. According to the report, "Virtual academies should provide qualified professional, administrative, and support staff in alignment with current state allotment formulas to achieve the organization's mission and annual goals" (NCDPI, 2022, p. 7). Therefore, the funding for personnel should be dictated by the number of students the virtual academy serves. The report also lists a minimum roster of support staff for virtual academies: instructional technology facilitator, school library media coordinator, data manager, and "enough remote technicians to ensure minimal impact when technical issues arise" (NCDPI, 2022, p. 7). School counselors are not included on this list. Specifically, principals reported they had access to data managers, technical support personnel, and instructional facilitators, but some of these roles are not full time employees of the virtual school. While some of the principals do

have full time support staff, others partner with the district to provide access to technical support or instructional facilitators. The media specialist is the only support staff member no school currently has on staff full time. Andrew states, "The teachers are … are so adept at the technology. They're also adept at finding Media Center resources that are easily available books for kids and everything that … that's one thing I … I just don't feel the need for." Deidre echoes this sentiment regarding the media coordinator position, noting, "The one that we had moved to a different position and … the job has not been replaced. And I can see why. I mean we do not need a school media coordinator every day in here. No." Based on my analysis of principals' feedback, the school media coordinator should not meet the required criteria for support staff, and principals agreed that the position was unnecessary. In addition, funding for support staff as listed in the document is limited, forcing principals to partner with other schools in their districts to fill those positions or eliminating those positions based on their necessity.

Similarly, principals reported a gap in the report's requirements for professional development and their current available offerings. Similar to the expectations for brick-and-mortar schools, "Virtual academies should support faculty and staff by providing access and time to participate in professional learning communities (PLC) and ongoing, personalized, job-embedded professional development opportunities" (NCDPI, 2022, p. 7). However, these professional development opportunities must be aligned with standards for online learning, specifically the National Standards for Quality Online Teaching (NSQOT) and the NC Digital Learning Competencies (NCDLC).

While the NCDLC standards are already embedded in current expectations for all teachers and current certified support staff regardless of learning environment, The NSQOT are separate, national standards for online teaching. Created in 2007 and updated in 2019, the

NSQOT separate online teaching expectations into eight standards: Professional Responsibilities, Digital Pedagogy, Community Building, Learner Engagement, Digital Citizenship, Diverse Instruction, Assessment and Measurement, and Instructional Design (VLLA and QM, 2019). All standards are broken into key indicators with examples of successful implementation and aim to "provide a framework for schools, districts, state agencies, statewide online programs and other interested educational organizations to improve online teaching and learning" (VLLA and QM, 2019, p. 6).

In alignment with the required professional development, all principals share that they participate, lead, and seek out opportunities for themselves and their staff to learn more about virtual learning strategies. Some shared that they provided their own professional development, while others indicated that they participated in programs and memberships in virtual learning communities in order to gain access to new research-based practices. Andrew notes a gap in the availability of professional learning that meets the needs of his virtual teaching staff:

> They're already past your average teacher in person when it comes to technology. Yet the companies who get professional development are still pretending like they're teaching someone who's in person.

This lack of personalization for experienced virtual teachers serves as a deterrent for his staff to participate. In addition to minor concerns about professional learning availability, four participants did not recognize the National Standards for Quality Online Teaching. Many of the participants shared they would research these standards for future implementation.

Principals overall reported limitations in their practice as compared to the recommendations of the report based on funding and access. They recognized that the recommendations for full time support staff such as data managers and instructional facilitators

were helpful, but they also saw the real-world application of funding and resources as a barrier to full implementation. In addition, their lack of knowledge regarding the NSQOT and how to utilize those standards to improve instruction in a virtual environment further demonstrates that they have had little time to research and implement effective learning strategies and virtual learning pedagogies within their schools. This further enforces the trial and error nature of services as shown in the previous section.

Applications and Contracts Can Be Tricky

All principals reported that they have required parent contracts for enrollment, work with parents to communicate expectations and current performance, offer intervention support for struggling students, and allow for students to transition back into the brick-and-mortar environment should all other interventions fail to show positive results. According to the report, enrollment in the virtual academy should be determined through an application process with parental agreements and support resources. In addition, throughout the school year, student performance should be monitored and evaluated, and interventions should be administered to help students who are not successful. Ultimately, should a student prove unsuccessful in the virtual environment, "PSUs have the authority to transition students to in-person schools to ensure students are in the most appropriate educational setting to achieve academic success" (NCDPI, 2022, p. 8).

All of the principals report that their parent applications and contracts provide entrance requirements such as academic standing and historical attendance and expectations for their performance while enrolled in the virtual school. These expectations and agreements, however, can be tricky to create because they become the basis for good standing and, therefore,

enrollment. Andrew sees his contract and application as a way to ensure parents understand that enrollment in his virtual school is a privilege, not a right:

> I think the reason why we have that parent agreement is to explain to the parents why they can stay in virtual, remain in virtual, and if you don't do this, this is why you're going back to in-person. So it really creates a contract that says you got to do this, this, this to stay virtual.

Bonita, limited in many of these discussions because of her school's design, echoes the need for a contract as a way to make parents "agree to be held accountable with their child for all that has taken place in their learning process." Chelsea's contract stipulates the level of support required for students to be successful, including creating a learning space, committing to in-person requirements such as testing, and "they just have to say as a parent, they're going to encourage and support their child throughout the time." Chelsea goes on to note that her application and contract aligns with program choice in her district, and "program choice does not provide transportation for any of our school choice programs. So that's kind of part of the deal." Ultimately, when principals create their applications and parent contracts, they create the rules parents and students must follow in order to remain in their schools–it is a deal that is made between the school and the parents in order to secure enrollment. Creating this document and the application materials sets virtual schools apart from their traditional brick-and-mortar counterparts, signifying that they are an option for education, but they're not the only option.

Because these contracts are so crucial to the success or failure of a student within each principal's virtual school, the majority of principals express concern about the process. Chelsea quips, "I just think they sign it. I don't think they really realized what they're signing." She continues, noting that "It just seems that now that people have returned to work, parents are

working. They cannot give the younger students enough time during the school day to assist them with schoolwork. I think it's a big ask." Regardless of the feasibility of the parent expectations, Elizabeth notes that she is "wary" of the parent contract and application because information cannot be verified in a timely manner:

> They do an online application. I don't know that parent from anything. I don't have access to their power school that does this online application. I don't even know if it's really them filling that thing out. And then I accept them and then they sign an agreement. So really, until, you know, we do all that like in March,...So really until the summer, until I start pulling in PowerSchool records and getting [cumulative] folders, do I truly know I have the permission.

Without the guarantee that parents understand what they're signing or truly are eligible for the virtual school program, principals are left to put standards in place without really knowing that they will be honored.

Despite these reservations about the process for application and creating the parent contract, principals agree that they appreciate what the contract has to offer: protection. Chelsea explains, "When I go to remove a student, sometimes they will try to fight it at the district level. And so those agreements really do help because I can say well, actually, they did know that they were supposed to make sure their kid was up on time." While they may be tricky to create and may not be treated seriously, the applications and contracts are useful in changing placement for students and parents who do not adhere to them.

Special Education Might Need More Support

Virtual academies must have provisions for students with disabilities (SWD) in order to offer them equal access to virtual programming. According to the report, "Denial of access to

virtual academies solely on the fact a student has a disability is a violation of IDEA" and "application guidelines cannot deny access for SWD" (NCDPI, 2022, p. 8). All of the principals believe they follow the requirements for exceptional students. All have staff members or have partnerships with 1-3 district staff members who are dedicated to implementing and progress monitoring IEP goals. Almost all of the principals report that they have the same ratio of EC students as their district counterparts or higher, and their performance data is in line or better than brick-and-mortar options. In alignment with the requirements, Chelsea, Deidre, and Elizabeth all mention discussing enrollment of SWD as a part of an IEP team decision. Elizabeth equates the admission requirements for students with special needs as the same as every other student:

> We've never denied a student based off having an IEP or having a 504. What we've relied on even before this document came out, so now I feel good about this, is can we meet their needs? And we ask that same question for any applicant, whether they're SPED or not, is this the best option? Can we help them academically grow? And if we can't answer yes to that, then we … we're not comfortable accepting them.

However, the recommendation to transition to a virtual learning environment should be made by "the student's IEP/ 504 team, including the parents/guardians of the student," and this team should create a plan "for successful student entry if virtual instruction is selected" (NCDPI, 2022, p. 8). Therefore, the entire team must agree that a virtual learning environment would be appropriate for student success. Two of the participants discuss creating addendums for IEPs to indicate a change in placement, changing the services to best meet students' needs in a virtual environment. Utilizing the IEP as a tool to measure readiness and capability in a virtual

environment, they feel, is an acceptable method for determining school enrollment and predict student success.

While the majority of special education requirements were met, some principals discussed possible ways they could not meet them. Deidre notes that her school does not have an Occupational Course of Study Program (OCS), which may be in violation of the requirements since the IEP programming is a barrier to the opportunity for virtual learning. However, none of the principals report having special programming of this nature. She discusses the work study requirements for the program as a current limitation for successful enrollment, but she indicates that she has been working to find a solution to offer enrollment for students following this pathway. One participant admits to sending six students back to their brick-and-mortar schools because they were not engaging in any course materials, and five of them were students with IEPs. They admit, "We were breaking the law because we weren't serving them." In this case, all five of the students refused to log in, complete assignments, or even communicate with school officials.

While all principals agree that SWD have equal access to admission in their virtual schools, the planning to execute all Special Education programs available to students in a traditional brick-and-mortar school in the virtual environment is not complete. Self contained or semi self contained environments where students are housed in special education classes all day are not available for virtual environments yet. In addition, once students enroll in virtual programming, the virtual school is legally bound to provide services, and there are little provisions for students and families who choose not to engage. Interestingly, four out of five participants made the statement that virtual school is not for every student. If the majority of principals admit that their schools are not for everyone and the report itself utilizes the caveat of

an IEP decision to determine placement, would a disability ultimately be a barrier for access to a virtual school? I believe more legal guidance regarding equal access to programming and more structured plans for SWD are necessary to address this gap in services and ensure all students who want to have the opportunity to participate can enroll and be successful.

Comparing Apples to Apples?

Virtual academies are held to the same accountability measures as traditional public schools, and "virtual academies are required to participate in the same accountability model and subject to all reporting and accountability requirements" (NCDPI, 2022, p. 8). This stipulates that state testing and reporting are the same as all other brick-and-mortar schools, and their data is compared on the same level. In addition, virtual academies must provide a site for in-person state testing that is NCDPI approved. Standards for operation set forth by statewide accountability standards based on student testing still apply.

While all the principals verify their students participate in all state-mandated tests and agree that accountability for a virtual school is important, the participants disagreed on how those results should be compared. Three out of five participants agree that virtual schools should be compared as equals to brick-and-mortar schools. Chelsea notes that comparisons between school types drives school improvement: "Ultimately, we should be providing high quality instruction to kids. So if we have major discrepancies in our data, then we need to fix it. We got to figure it out." In fact, she used school data to support the closure of the elementary grade band for her school because the scores were lackluster. Deidre cites the lack of separate virtual school data as her reason to be compared to brick-and-mortar schools.

However, Andrew and Elizabeth both report researching other virtual schools to make their comparisons. Andrew states, "I think [we] should be compared to apples to apples." While

Deidre agrees that data from all PSUs can be compared, she notes that inherently comparing

virtual schools and brick-and-mortar schools should not be considered:

> We're not the same. … You just can't stick all the square pegs in round holes. So we
>
> have to be a little bit more. We have to diversify just a little bit more and, and take into
>
> account that this is a virtual academy, that they are at home; there are differences.

She argues that the difference in learning environment is so distinct that they cannot be treated

the same as any other in-person PSU. None of the other principals comment on the elimination

of distinctions between virtual and in-person learning environments. While the participants are

divided in their beliefs about comparing testing data between virtual and non-virtual schools, the

fact that virtual schools are different from brick-and-mortar schools is clear. Providing

opportunities for virtual schools to compare themselves to other virtual schools throughout the

state in addition to their district counterparts may be one way to level the playing field.

Summary of Perceived Connections

The overwhelming majority of systems and structures put into place through NCDPI's

"Study Group Results: Working Group on Virtual Academies" (2022) report are reflections of

the systems and structures independently designed by the virtual school principals in this study.

All of the principals raised concerns about the implementation of the recommendations, but they

did not completely reject them or question their validity. Their experiences cause them to

question the ways in which they could enact those recommendations, bringing to light the

barriers they see in their schools. They all agree that eliminating those barriers, such as

addressing the Broadband Gap in NC and truly understanding how equal access applies to SWD,

would make the report even more applicable to their schools.

Conclusion

The data I collected through document analysis and semi-structured interviews paints a picture of the virtual learning ecosystem in comparison to the statewide requirements for virtual academies. This picture identifies virtual school principals as constantly defining and redefining their roles and structures while at the same time unintentionally aligning themselves with current policy recommendations, making the recommendations seem reactionary instead of visionary. While principals provide information regarding their current roles and practices which align with the E-Learning Systems framework, the balance of these roles tends to focus heavily on people and less on technology and services. If the ecosystem is out of balance at the school level, does this mean that the NCDPI report is also out of balance? I discuss the implications of these gaps in further detail in Chapter IV.

CHAPTER IV: ANALYSIS AND RECOMMENDATIONS

My goal in conducting this research was to identify the current practices and roles of virtual school principals and gain insight into recommendations they might have for the improvement of virtual schools in NC, voices which are missing from current research. I conducted two semi-structured interviews each with five virtual school principals, focusing on current experience and application of state recommendations provided by the NCDPI report titled "Study Group Results: Working Group on Virtual Academies" (2022). I asked current virtual school principals about their experiences, instructional initiatives and best practices, and how their current practices relate to recommendations provided by the NCDPI report. Through this research, I hoped to illuminate the current experiences of virtual principals in NC, their current roles and practices within their virtual schools, and how their experiences compare to current statewide recommendations for virtual academies.

My research questions centered around the virtual principal experience and current statewide recommendations. These questions were as follows:

RQ1: How do North Carolina virtual school principals describe their perceptions of their roles and current practices in the virtual learning environments they lead?

RQ2: How do virtual school principals perceive practices in their schools relate to the Virtual Academy Recommendations document presented to the NC General Assembly?

This chapter synthesizes my research from my document analysis and the semi-structured interviews revealed in Chapter III with the insights I gained from the literature review in Chapter II, applying the E-Learning Systems theoretical framework as a lens to view the symbiotic ecosystem of virtual learning.

Research Question 1: Principals' Roles and Perceived Successful Practices

My first question addresses the principals' perceived roles and successful practices in their current schools. I wanted to know what principals, as the leaders of their schools, do to successfully implement virtual learning before presenting them with statewide recommendations in order to possibly identify a gap between them. I anticipated that their lack of voice in the creation of statewide recommendations would be evident in that gap. I presented my findings through the lens of the E-Learning Systems framework in order to provide a measure of how principals perceived successful implementation; if the virtual school ecosystem principals described fit the framework, the ecosystem would be balanced, and the system itself should be successful. However, I found a largely unbalanced system where principals spent the majority of their efforts supporting people (stakeholders) more than technology (tools for implementation) and services (pedagogy and instructional methodology).

In essence, my answer to this research question is that principals describe their current roles and practices as unstable. Based on my analysis, I argue that the basis of this imbalance is due to lack of training and experience for virtual school principals, which leads to too much focus on people and not enough time and resources to focus on finding and implementing technology and services, two areas where virtual learning diverges from traditional brick-and-mortar environments. However, this focus on people highlights the importance virtual school principals place on the humanistic aspects of education, and the overemphasis on people attempts to compensate for the virtual setting. The following sections provide the detailed analysis that explains my argument.

Lack of Training as a Root Cause of Imbalance

All of the participants in my study identified themselves as veteran educators in district virtual academies. Despite their level of experience, all of them had no formal training in virtual learning prior to taking on their roles, and they have all served in their current roles for three years or less. Based on the literature review, I anticipated this lack of training due to the innovative and still relatively new nature of virtual learning and the lack of current programs available to prepare leaders for such a role. As discussed by both Molnar et al. (2019) and Richardson et al. (2016), there is a current gap for virtual educational leadership training across the nation, and this gap leaves virtual principals unprepared for the roles they are asked to fill. While Molnar et al. (2019) noted little information is available regarding the training and preparation for the virtual principalship, Richardson et al. (2016) described virtual principals as being "ill-prepared" (p. 219). As a result of this lack of training, all of the research participants alluded to the fact that they must create and adapt practices and procedures through trial and error, or as Chelsea describes it, "building the plane as we fly it."

Based on what principals had to say about the development of their schools, I believe the Covid-19 pandemic may be one key reason for their lack of training. While some experienced virtual learning for the first time through the Covid-19 pandemic as either a teacher or administrator, other participants were "voluntold" to take up their positions based on their knowledge of technology. Four out of five participants admitted that they did not choose the pathway to virtual principalship–it chose them. This lack of choice was due in large part to the Covid-19 pandemic and the forced necessity of emergency remote learning that fueled the movement for district virtual academies. Three out of five participants transitioned into their roles while emergency remote learning was still in effect in NC, and all of them discussed the

impact of COVID-19 to either speed up the development process of their virtual school or create their school from scratch. This urgency led to the creation of virtual schools based on necessity without the proper planning and research to fully develop a functioning ecosystem.

However, despite the impact of Covid-19 as a catalyst for the hasty implementation of their schools, all research participants perceived their roles similarly to those described in pre-pandemic literature. Principals described the many facets of their day-to-day interactions with students, parents, teachers, district leaders, and the surrounding community, while at the same time trying to ensure successful student outcomes by developing instructional methodologies and finding or encouraging the use of new technological tools to enhance learning. It is no wonder that they find their roles challenging, and many of them describe wearing "many hats" to keep their schools running. Their assessment of their roles pre-dates the Covid-19 pandemic as shown in particular by Richardson et al.'s (2016) findings in their qualitative study of the roles of virtual school administrators as compared to their brick-and-mortar counterparts and the key shifts that must happen when changing learning environments. While all of my research participants had previous experience in a brick-and-mortar setting, and they received their administration certification for that setting, their descriptions of their roles align with Richardson et al.'s (2016) primary focuses: cultural leadership, technology and curriculum management, and teacher and evaluation support. Even though these focuses were not a comprehensive list of roles I found virtual principals must undertake, every principal I interviewed spoke about them, identifying the challenges they faced in implementing them.

However, principals' perceptions of their roles and practices focused more heavily on stakeholders, the area that most clearly aligns with their brick-and-mortar administration backgrounds. All principals, whether virtual or brick-and-mortar, are the leaders of their school

community. I believe they focused on what they already knew how to do from their training, and they placed less focus on the technology and services needed to balance the virtual school ecosystem. In addition, their emphasis on people attempts to close the distance between stakeholders created by the virtual environment, highlighting the humanistic aspects of traditional education. The problem, therefore, is not completely rooted in the Covid-19 pandemic; the problem is they did not have the foundational knowledge in virtual learning. Virtual schools were never conventional environments, and while the pandemic may have exacerbated the need to innovate and provide emergency remote instruction, providing virtual instruction was never supposed to be the same as traditional brick-and-mortar methods. Without formal training in virtual school operations and leadership, all of the participants aligned themselves with current research on the role of a virtual administrator: there are no rules, there is no precedent, and there needs to be some way of developing both to remove that strain.

Emphasizing People Because of Familiarity

As a direct result of the lack of formal training in virtual learning environments and virtual school leadership, principals focus their efforts heavily on what they do know: people. A large majority of the perceived roles and current practices the research participants faced were those involving stakeholders. While the participants' descriptions of teacher, student, and family supports are similar to those a brick-and-mortar principal may encounter, the barrier of distance and sometimes lack of physical location creates an added layer of difficulty. According to the data from this study, teachers need additional guidance in finding and implementing successful instructional strategies, students require additional personalized attention, and parents need to be trained on how to support their child in a coaching capacity. These three stakeholders, students, teachers, and parents, make up the ultimate systemic structure that guides the successes and/or

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failures of a virtual school, an echo to the findings of Liu et al. (2010) on the vital role parents play in a virtual learning environment. This is also echoed in how Stephenson et al. (2021) described the increased responsibilities virtual principals undertake in training and supporting teachers, and in Azukas (2022) study on the importance of building virtual connections and relationships with students. The research participants' experiences as the conductor—orchestrating, guiding, and improving these interactions—places the virtual school principal at the center of it all. In essence, the delicate balance of the virtual teacher-student-parent relationship is the responsibility of the principal, and these relationships, while they are similar to the brick-and-mortar experience, must be adapted to fit the virtual environment.

Building community and seeking support from the community are also familiar school administrator tasks; however, without the benefit of a physical location, these tasks are more challenging. Participants described seeking out advocates for their schools to fill key roles or provide extra guidance needed to train teachers, find testing locations, or just answer questions. They describe building the "organizational capacity" Abrego and Pankake (2010) discuss in their findings (p. 11). Likewise, they described creating a school community through hosting in-person or virtual events where relationships between teachers, students, and families could be established, reinforced, and celebrated, aligning with Stephenson et al.'s (2021) findings that the principal of a virtual school is the center of school culture.

On top of the familiar tasks of a school administrator, research participants described the added pressures of recruitment, marketing, managing stigmas, and supplementing insufficient funding. Out of necessity, most research participants described advertising and promoting their schools to increase enrollment by marching in parades, using social media, or hosting open houses. Driven by the pressure to make their numbers and continue, some of the research

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participants expressed the need for marketing and recruitment as a means for survival. In addition to needing those numbers, participants described having to play an active role in reversing the stigmas surrounding virtual learning itself. Combating the public opinion's equivalence of virtual learning with remote instruction as described by Young and Donovan (2022) and Hodges et al. (2020), participants revealed having to defend their practices, students, or even existence to the public. However, unlike criticisms of virtual schools found in the research, participants also described struggling with funding due to the fact that they were all schools within a public school district. Unlike the typical criticisms described by Molnar et al. (2015) where fully virtual schools are able to cut overhead costs and provide a more cost-effective option, participants described having to supplement funding through partnerships with district allies, community organizations, and grant writing. As a public school unit, each virtual academy received the same per pupil allotment as their brick-and-mortar counterparts, but because of their size, they were not able to make ends meet without bargaining and begging for additional funding. While unfamiliar to a brick-and-mortar administrator, principals continued to place focus on these tasks for survival, and their experience with other stakeholders helped them make an unfamiliar task more comfortable.

At the basis of this heavy burden on the element of people in the virtual school system, this study suggests that the burden of responsibility for the viability and sustainability of a virtual school lies on the principal's shoulders. The principal is the one key connecting factor between all of the stakeholders. Managing these relationships, connecting the dots, and creating the partnerships take an exorbitant amount of time and energy, and without that added effort from the principal, the school will ultimately flounder and fail. This stakeholder juggling act described by the participants keeps the heartbeat of the virtual school pumping, but none of this vital work

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concerns virtual instruction, content, or pedagogy. Untrained in these areas and overwhelmed by the amount of time and effort they place on people, principals approach these areas as unfamiliar territory and are less comfortable managing them.

Technology and Services as Unfamiliar Territory

While stakeholders are key aspects of any learning environment, the integration of the technology and services required for a balanced e-learning system are not as familiar. Principals in brick-and-mortar schools have training in pedagogy and instructional methodology for in-person learning, and they may not need to be the lead innovator for finding and utilizing technological tools. As Stephenson et al. (2021) note, virtual principals are more responsible for "helping their teachers develop as digital educators" and "reported personally evaluating the digital content being used in instruction" (p. 24). When faced with this unfamiliar territory, the virtual principals again leaned into practices they are familiar with. Like the historical integration of technology into education, research participants describe adding virtual learning tools, content, and strategies into the infrastructure they established, not basing the infrastructure on the demands and capabilities of the virtual learning environment itself. These descriptions strongly resemble Cuban et al.'s (2001) findings of technology integration in Silicon Valley where teachers "adapt technology to fit the familiar practices" due to lack of time and training (p. 825). Principals in this study are following the pattern of technology integration, using it where it is familiar instead of redesigning pedagogical methodology for the virtual environment to enhance learning outcomes.

The technology (content, communication, and collaboration) research participants describe as part of their roles and practices as virtual principals focus on engagement, utilizing technology to facilitate communication and interaction. A familiar task, engagement is also a key

factor in brick-and-mortar classrooms. Echoing research from Curtis and Werth (2015) on the importance of engagement in virtual schools, research participants placed value on engagement as the key ingredient for successful learner outcomes. While participants described the ways in which they engaged learners–providing live instructional sessions both in person and in virtual environments, requiring cameras on to increase interactivity, and reducing class sizes through small group breakouts–there was little discussion about the content delivered. Some of the participants highlighted the importance of teachers' roles in adapting curriculum created for brick-and-mortar environments to meet the needs of students in virtual settings, emphasizing that the preparation involved for virtual teachers involves thoughtful planning due to a lack of control in the learning environment.

Likewise, services (pedagogical models and instructional strategies) are unfamiliar territory for virtual principals. Four out of five research participants describe the pedagogical models and instructional strategies for their schools through developing instructional practices and utilizing Web 2.0 tools. The trial-and-error nature these participants describe represents a constant focus on adaptive change. For these leaders, the findings of La France and Beck (2014) hold true: they must seek to understand online learning theory in order to employ effective strategies and models. While none of the participants describe deep dives in the research surrounding online learning theory, they do describe utilizing limited knowledge from virtual learning organizations and professional development sessions to almost create their school's models from scratch. Trying out new methods and constantly measuring them against student performance, these leaders highlight the constant pivot needed in order to employ effective instruction that works for their particular students.

A Better Model?

An outlier of the data set, Bonita's experience facilitating the technological and service aspects of the virtual learning ecosystem are limited to the information given to her by the contracted providers. Without the direct connection to the learning environment, she describes having to focus less on what students received in the virtual classroom and focus more on how to support them once they do receive that instruction. Her experience alone demonstrates what the virtual principal role looks like when the added pressures of facilitating instructional practices and guiding teachers to adapt their content and delivery to a virtual environment are relieved. Unlike the other participants, she does not need to understand and model virtual learning; she simply trusts the virtual learning provider and their expertise, allowing her more time to engage with stakeholders. She thinks very little about how students receive their instruction because she does not need to engage in that area. Trusting the service provider based on her students' measured learning, she, again, can focus on the needs of the stakeholders alone.

While this model does achieve balance in the e-learning system, Bonita's example may be unrealistic for large-scale virtual schools. Paying for an outside provider to implement technology and services in order to achieve a better balance in the e-learning system would cost school districts hundreds of thousands of dollars, but it is interesting that without the burden of technology and services, Bonita did not have to innovate, learn, revise, retry new technological tools and pedagogical methods. When given the time and training prior to implementing their virtual schools, I believe the other principals would be able to achieve a similar balance.

Implications

Based on the data gathered from all research participants and its application to the E-Learning Systems framework, virtual principals are overwhelmed with the responsibilities and

day-to-day interactions with stakeholders. The scale in which they describe their need to deal with people far outweighs those of technology and services, and the added burden of creating systems and structures for all three areas while in the midst of employing those systems and structures explains why four out of five participants describe their positions as more challenging than a brick-and-mortar role. Due to a lack of training in virtual learning and leading virtual schools, they focus more heavily on what they know, and they utilize trial and error methods to create learning programs that they are constantly having to adapt.

The lack of preparation for such a role and the absence of pre-structured technology and services integration prior to implementation creates an environment where there is constant change, constant pivoting, and little time for self reflection. The only environment where the balance between people, technology, and services is achieved is the one described by Bonita, not because she is more prepared to lead a virtual school or knows more about online learning theory, but because the technology and services are already designed for her. She is the only research participant who does not have to create, implement, and restructure key elements of the virtual school ecosystem throughout the school year, and she is more free to interact with all of the elements as more of a leader and less of a workhorse.

Recommendations for Practice

In order to rebalance the virtual learning system, instructional elements within a virtual school that account for both technology and services should be well designed and researched prior to implementation. The focus for current virtual school principals is currently stakeholders, and I believe that this emphasis is necessary in building and maintaining a strong school culture in a virtual environment. However, in the absence of a strong foundation of services and technology created prior to opening a virtual school, the emphasis on people detracts from the

time needed to build those elements. Building the plane as it is flying is overwhelming and leads to trial and error strategies that may or may not work, and the continuation of methodologies developed out of the emergency response to the Covid-19 pandemic, while the basis for the rushed opening of four out of five virtual schools, lends itself to continued triage-based systems.

Virtual principals need more training and opportunities to learn about effective virtual instruction to eliminate this burden. Seeking out professional development for virtual learning is not enough. Principals should be required to attend specific programs to train them on the design and management of successful virtual schools. However, programs such as these are not readily available. As LaFrance and Beck (2014) point out, training for pre-service virtual school leaders is not a priority. As virtual schools continue to grow, university programming must also adapt to help future principals step into this role. For now, if virtual school principals in NC are given the time and resources to effectively design and develop the technology and services needed to execute successful virtual learning, the role of the virtual principal would be more balanced and the virtual school practices would feel less like an emergency room and more like a functioning system.

Research Question 2: Perceived Connections Between Practice and Policy

My second question provided an opportunity for virtual school principals to interact with the NCDPI report, and I anticipated it would reveal gaps between current practices and proposed state recommendations. However, I found that all of the virtual principals mostly agreed with what the Working Committee proposed with few exceptions. To answer my question, they believed their current practices were aligned with policy recommendations, but they wanted more from the report to indicate how they should implement virtual schools. This alignment indicates that the Working Group proposed recommendations based on current practice, and if

current practice creates an imbalanced e-learning system, the report itself is also out of balance in terms of people, technology, and services. The report clearly indicates key stakeholders for the management of virtual schools, but they leave specifics for technology and services to the discretion of the district or principal.

However, research participants' disagreements with the report were a direct reflection of their missing voices in its creation. Three of the research participants pointed out their own missing voices, expressing concerns that their roles were underrepresented, and even when they knew or worked with representatives on the committee, they were not consulted for their unique perspectives. Without the virtual academy principal perspective, the Working Group proposed regulations for virtual academies that missed the nuances only leaders in those environments would recognize. Based on my analysis, principals recognized the need for more guidance. A reflection of their lack of training, principals looked to find more specific guidelines for their practice in the NCDPI report, but they found gaps that need to be addressed at the state level. The following sections show the gaps in policy that principals believe should be prioritized.

Stakeholder Support Requires Funding and Explanation

While research participants agreed that the recommended personnel requirements were mostly valid, they found gaps in what they were able to offer due to funding constraints or availability. Their needs for technical support, data managers, and technology facilitators were largely met due to partnerships they had to create themselves. Unlike Ravitch's (2020) observations that less overhead costs are needed to implement virtual schools, research participants indicated that they did need support from key personnel who, because of their low enrollments and therefore ADM funding, could not be solely dedicated to their virtual schools. In addition, principals believed that it was crucial to provide professional development

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opportunities to help teachers grow in their practice as virtual educators because the current offerings for training that fit their needs were insufficient. Virtual principals shoulder the burden for implementing those supports and seeking out the partnerships to achieve those necessary job functions and trainings. Furthermore, principals identified the required media coordinator position as a gap in understanding. All of the research participants noted that while partnerships with media specialists can be beneficial, most of that work can be completed by teachers who already seek out digital media to supplement core instruction. Based on my analysis, virtual principals require more funding and guidance from policymakers in order to execute the report's requirements for stakeholders.

Similarly, the Working Group provided recommendations for providing virtual instruction for SWD, requiring virtual schools to eliminate the virtual environment as a barrier to enrollment. However, research participants had concerns regarding how some of those barriers can be overcome, demonstrating the lack of real-world application to seemingly reasonable requirements. Every research participant noted at least once during their interviews that virtual learning is not a one-size fits all means of education. Like so many of the research studies point out, not every student will be successful in a virtual school. Mandating ways to eliminate barriers SWD may face in a virtual environment does not negate the fact that the entire system is different and should be treated differently. If students who follow the Occupational Course of Study are not enrolled in virtual learning programs due to the constraints of their programming, the virtual learning environment itself is a barrier to enrollment. If students' IEP goal service delivery cannot be met because they refuse to engage, the virtual learning environment, again, is a barrier to enrollment.

The main missing component for these requirements is the how. As Deidre notes in her reflections on the report's recommendations, "they're not saying how they're going to do it." Without this key information, the stakeholder management element of the E-Learning System is missing the tools with which to accomplish the ultimate goal of providing virtual learning environments for students who choose to enroll in them.

Technology Recommendations are Missing or Unclear

Research participants all found holes in the content, collaboration, and communication elements of the NCDPI report. There are no specific guidelines for content except the expectation that they all meet the NC Standard Course of Study and align with virtual learning standards. Participants describe utilizing curriculum adopted by their districts and guided by the state standards, but again, how they are supposed to implement a curriculum not designed for virtual learning is not clear. Each school is allowed to determine how they may implement synchronous instruction, so real-time collaboration is not even required, even though it is emphasized by principals as important to the success of students. Based on the experiences of most of the virtual principals within the study, this lack of specific guidance creates more work for all staff members, adapting content to meet their needs on their own.

The ability to access stakeholder collaboration and communication relies heavily on reliable Internet access for students and staff and is addressed largely through infrastructure requirements within the report. However, research participants reflected that these requirements, while completely reasonable, are hard to achieve. The current state of Internet connectivity throughout NC, participants reflected, does not match with the expectations the document sets. Even though four out of five principals reported providing free Internet access to students to eliminate the barrier for communication and collaboration, they cited major problems with the

reliability of the devices given. Without reliable access to these tools, the virtual environment is exclusionary at its core (Fedynich, 2013).

Services Need More Specification

In my analysis, I found that pedagogical models and instructional strategies designed exclusively for virtual learning environments were also missing from the NCDPI report. Research participants' reflections on the lack of seat time (because they don't all take daily attendance), absence of pedagogical methodologies, and requirements for testing and accountability in comparison to brick and mortar within the report are a symptom of placing a square peg in a round hole. In other words, the models proposed by the state are more appropriate for brick-and-mortar schools and not for virtual schools. Research participants highlighted the differences between their current practices and beliefs, culminating in the fundamental differences between brick and mortar and virtual school environments. While the purpose of the document is to equate virtual schools with their brick-and-mortar counterparts, the principals did not think this was appropriate. The district-based virtual academies operate on district structures, which means that they have attendance guidelines for seat time, enforce district adopted curriculum, and hold schools accountable for their data in direct comparison to students in brick-and-mortar schools; these mandates are not modified or differentiated to reflect the change in the educational setting. Like Tawfik et al. (2021) suggest, some instructional strategies are difficult to translate in equivalency within the two environments.

Implications

The NCDPI report mostly aligns with the current practices of all of the virtual school principals interviewed, yet the missing voices of real-world application are missing and could have provided more insight in developing better structures. The application of the E-Learning

Systems approach verifies that while the three areas are represented in some way throughout the document, there is a large emphasis on providing parameters and basic guidelines without the specifics needed to effectively implement a virtual learning environment. Research participants' heaviest criticisms fall in the areas of services and technology, the two areas where virtual principals' perceptions of their current roles were lacking. Basically, principals identified their need for improvement in technology and services and wanted more state policy recommendations to help navigate those areas.

Because the requirements outlined in the report deliberately negate the difference between brick and mortar and virtual learning environments, equating them as public school units that must function in the same parameters, the innovative restructuring of traditional learning mechanisms must be left to the trial and error triage practices virtual principals describe. Virtual principals crave more differentiated and specialized parameters to meet the needs of their students, families, and staff because the traditional methodologies established by the educational system no longer fully apply. Without specific policy for implementing virtual schools, specifically focused on technology and services, the virtual school ecosystem will always be imbalanced.

Recommendations for Policy

First, policy should not force virtual schools to be more like brick-and-mortar schools. Instead of forcing virtual schools to fit the mold, I argue that a new mold should be created specifically for virtual schools. Policies developed to regulate virtual learning environments have to acknowledge their differences, not make them fit into current educational parameters. Policymakers should consult with experts, such as virtual school principals, in order to think about the capabilities of virtual learning and reverse engineer a system that utilizes those

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capabilities while also meeting the educational needs of students; it is the only way to ensure the proper balance of the E-Learning System.

Additionally, policy should be more specific to create guidelines for successful implementation that release the burden of virtual school principals in creating a balanced system. Without specific guidelines, virtual principals are left to create all of the virtual school systems on their own, and as shown in the previous section, this leads to a heavy focus on people because they are more comfortable with managing stakeholders. When policymakers develop structures based on current practice and not created by design, the problematic symptoms found at the school level can also be visible in the policy itself. However, if policymakers design structures to address each area of the e-learning system to make implementation easier on the school level, the balance will trickle down and provide relief for struggling principals.

Recommendations for Future Research

Based on the findings of this study, more research is needed to find out how other states have responded to the increase in virtual learning options post-Covid. While this study focused on the response of NC, a wider scope of virtual schools across the United States (and maybe beyond) could help researchers illuminate better recommendations for future practice and increase successful outcomes for more students craving a virtual education. I say this because virtual schools are not going away, especially since we learned so much during the pandemic about the nationwide need for virtual education. Further studies of current practices is necessary to build upon the lessons we learned during emergency remote instruction. Gustafson and Haque (2020) note that virtual schools "redefine education across the United States" (p. 8), but until we know what that definition is or what it could be, virtual schools will continue to operate under a systems imbalance.

In addition, more research is needed to examine the effective instructional practices and structural necessities in order to provide an inclusive virtual environment that accounts for the virtual educational setting. The findings of my research indicate that current virtual school implementation in NC was created as a response to the Covid-19 pandemic, and this crisis-based implementation led to systems and structures which were not intended to operate beyond an emergency response. As virtual schools become more prevalent in the US, we will find more evidence-based practices to create a standardized implementation of virtual schools and negate the need for virtual principals who feel they have to reinvent the proverbial wheel.

Final Thoughts

The need for organizational change in education has long been hypothesized and debated among researchers and practitioners. While technology and its advancements, now even the creation of a new learning environment, have accelerated over time, little has been done to reshape the educational system. Wolk (2007, 2017) would probably not recognize the virtual learning environments we now offer as traditional schools, but the efforts to place brick and mortar based regulations on those environments hinder their further development and innovation. School can be done a different way, but this involves the willingness of policymakers and educational leaders to step back and take a different approach.

With increasing learning and opportunity gaps nationwide, we really must ask ourselves if the current educational system is doing what is best for all children, giving them the tools necessary to succeed in a much different environment than their ancestors. While the steps taken to establish virtual academies post-Covid have been monumental accomplishments, many of them have been taken by individuals who have created their own ways of making virtual schools work. Leaders such as the virtual principals interviewed for this study are exhausted trying to

work within the parameters of traditional schools and reinvent the wheel. More research and planning is necessary in order to implement a fully virtual environment for students to thrive and succeed. Virtual schools are more than the emergency learning environments created by the necessity of the pandemic, and to create a successful model, the elements of technology and services should be well planned and designed in order to account for a necessary focus on people, a missing humanistic link created by the virtual environment.

As a seasoned online teacher and leader, I have seen virtual school implementation that is well planned and organized, and I have seen programs such as the ones research participants described, developed in the moment, building the plane as it takes off. While both models were ultimately successful over time, the strain of creating and implementing virtual learning at the same time takes a toll on all educators and stakeholders. The result of this strain places students in an experimental virtual environment, and the instructional model, designed through trial and error, places the academic success of students in the balance while programs and initiatives are being perfected. Defining and refining the basis of a standardized virtual learning model for North Carolina may take more time, but it will eliminate the risk of losing students through the cracks of virtual learning experimentation. The more we can work together to define what education means in a virtual environment, the less school leaders have to take upon themselves, and the more likely we are to succeed in meeting the personalized educational needs of all students.

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APPENDIX A: INTERVIEW PROTOCOL FOR RESEARCH STUDY

RQ1: How do North Carolina virtual school principals describe their perceptions of their

roles and current practices in the virtual learning environments they lead?

RQ2: How do virtual school principals perceive practices in their schools relate to the

Virtual Academy Recommendations document presented to the NC General

Assembly?

Interview #1 (focus on research question #1)

1. Describe your current position in a virtual school, how long you have served in this

   position, and what drew you to leadership in virtual education?

2. What specialized training in virtual learning did you receive prior to taking your

   position or while serving in your current position? (If none, how did you learn the

   tenets of your position despite having no formal training)

3. Describe a typical day as a virtual school principal.

4. How do you believe your role as a virtual school principal is different from that of a

   brick-and-mortar principal?

5. In a perfect virtual school, what would your ideal duties and responsibilities as

   principal be? How does that compare to your current duties and responsibilities?

6. In what ways (positive and/or negative) did the Covid-19 pandemic affect your school?

7. What are some of the most effective instructional practices currently in place at your

   school? How were they developed?

8. What would you tell a family considering enrolling their child in your school?

9. When observing teachers in a virtual environment, what are some of the instructional best practices you are looking for? What makes a good virtual school teacher? How does the virtual setting impact teacher evaluations?

10. If you could magically improve instructional practices at your school, what would you want to improve first? Why?

11. As a virtual school leader, how does public opinion interact with marketing (advertising/outreach) your school as a viable option for students?

12. How does your school identify and address inequities that a virtual environment might exacerbate (socio-economic, race, gender identity, etc.)?

13. What programs or initiatives does your school have in place for struggling students? How would you measure their current effectiveness?

14. Aside from what we have already discussed, what would you want the world to know about your experiences as a virtual school leader?

Interview #2 (focus on research question #2)

1. Were you aware of this document before I shared it with you? What were your first impressions of the document? Anything that stuck out to you as something you wanted to talk about?

2. The document outlines infrastructure requirements that are necessary for all virtual academies. Do you believe your school meets these requirements? Why or why not? Would you add any additional infrastructure?

3. The document states that seat time cannot be required to demonstrate proficiency in a course. How does that compare with your current practice?

4. Personnel requirements include a list of staff who must be included–"Instructional technology facilitator, School library media coordinator, Data manager, and enough remote technicians to ensure minimal impact when technical issues arise." Do you feel your school meets these requirements?

5. According to the document, teachers must be given access to professional development that aligns with the National Standards for Quality Online Teaching and the NC Digital Learning Competencies. Does your school utilize these standards? Why or why not?

6. The document outlines parental agreements and supports that should be in place for virtual academies. How does your current parental involvement practice compare to those expectations?

7. How do the expectations for SWD / EC measure up to your current standards at your school, specifically the mention of increased SPED staff, oversight, possible hybrid options, and the negation of SPED distinction as a barrier to learning?

8. The summary of recommendations within the document states that "Virtual Academies and in-person schools can be directly compared and measured." To what degree do you agree or disagree with this statement?

9. Do you believe this document addresses instructional elements required in a virtual environment? What more should it include? (3 instructional best practices). Explain.

10. Overall, to what extent do you believe your school meets the criteria for a successful virtual academy as outlined in the document?

11. Based on your experience, what changes (if any) would you suggest to this document if you were a part of the DPI committee?

APPENDIX B: REPORT TO THE NC GENERAL ASSEMBLY

North Carolina Department of Public Instruction. (2022). Study group results: Working group on

virtual academies. https://webservices.ncleg.gov/ViewDocSiteFile/15723

North Carolina Department of PUBLIC INSTRUCTION

Report to the North Carolina General Assembly

Study Group Results: Working Group on Virtual Academies

SL2021-130, SB654, Part IIIC. Virtual Academies Study, Section 3C

Date Due: March 15, 2022
DPI Chronological Schedule, 2021-2022

NC DEPARTMENT OF PUBLIC INSTRUCTION

Catherine Truitt, State Superintendent: 301 N. Wilmington Street: Raleigh, North Carolina 27601-2825

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Introduction

The COVID-19 pandemic disrupted the way we live, work, and the way we educate our children. On March 14, 2020, per Executive Order 117, North Carolina closed its public schools to in-person instruction. In the spring and fall of 2020, Public School Units (PSUs) throughout North Carolina pivoted to emergency remote instruction. While North Carolina PSUs have utilized virtual instruction throughout the past 20 years, pandemic-related legislation allowed for the widespread use of remote instruction. While an emergency transition to remote instruction was problematic for many students, high-quality, purposeful virtual learning in North Carolina has provided many students rich opportunities for over 20 years. As schools reexamine their instructional program post-pandemic, many districts are looking at integrating purposeful, high-quality virtual and hybrid instruction for students and staff to meet the needs of all families.

North Carolina schools have a rich history of offering virtual learning opportunities to meet student and district needs. In 2002, the Cumberland Web Academy was launched, which evolved into present day North Carolina Virtual Public School (NCVPS). Established in 2006, NCVPS has enrolled approximately 648,000 students to date. PSUs have access to online courses through dual enrollment in community college programs, and online courses offered through special programs, such as North Carolina School of Science and Math. These resources have been in use statewide for many years. It is evident that districts have used supplemental virtual instruction as part of their standard instructional program for quite some time.

In the Spring of 2021, PSUs were required to offer in-person instruction while simultaneously offering hybrid and remote learning options. Many also developed new virtual academies. Throughout the 2021-22 academic year, learning disruptions continued due to COVID-19 outbreaks. The pandemic has resulted in increased experience and skill with virtual instruction, which has resulted in an increased demand for virtual academies. From 2018-19 to the present, NC schools have increased from five full virtual academies to 61 (see Table 1). Hybrid virtual schools offer a blend of in-person instruction with online activities, which may include synchronous and asynchronous instruction. Currently, there are four pending applications for virtual academies.

Table 1: Count of Virtual Academies in North Carolina

	Full Virtual	Hybrid Virtual
Pre-Pandemic	5	7
2019-2020 School Year	11	25
2020-2021 School Year	57	39
2021-2022 School Year	61	45

On August 30, 2021, the General Assembly passed SL2021-130, legislation to provide relief to public schools in response to the COVID-19 pandemic. Part IIIC, Section 3C called for the North Carolina Department of Public Instruction (NCDPI) to establish a Working Group on Virtual Academies that includes interested stakeholders from, at a minimum, PSUs, parents, and the State Board of Education to make recommendations related to virtual academies. The Working Group shall be chaired by the Superintendent or Superintendent's designee and shall review in its deliberations data and information gained from the 2020-2021 school year and from the virtual instruction plans submitted by Public School Units for the 2021-2022 school year[1].

Working Group Implementation

The Working Group, co-chaired by Dr. Michael Maher and Dr. Vanessa Wrenn, identified a group of individuals within NCDPI and NCVPS to serve as subcommittee chairs for each of the report requirement

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[1] https://www.ncleg.gov/Sessions/2021/Bills/Senate/PDF/S654v7.pdf

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areas. This team met multiple times in September 2021 and October 2021 to define roles and identify external members for the working group. On October 26, external members were invited to join the working group with their first convening on November 10, 2021. External members work in the field of virtual instruction, have extensive knowledge and experience in one of the report requirement areas, or have children served by a virtual academy. A list of members can be found below.

Table 2: Virtual Academy Working Group Committee Members

First	Last	Affiliation
Jason	Atkinson	Superintendent, Bladen County Schools
Lynne	Barbour	Deputy Director, OLR, NCDPI
Jennifer	Bennett	Finance and Business Services, Director of School Business Services, NCDPI
Jill	Camnitz	Northeast Education Region, State Board of Education
Calen	Clifton	Research Analyst, OLR, NCDPI
Elizabeth	Colbert	Executive Director, NC Virtual
Jeni	Corn	Director of Research and Evaluation, OLR, NCDPI
Joy	Crosby	NC Virtual Teacher of the Year, NCVPS
Jennifer	Custer	EC Director Davie County Schools
Jill	Darrough	Section Chief of Digital Teaching & Learning, Digital Learning &Technologies, NCDPI
Tim	Decresie	Director of Digital Learning, Pitt County Schools
Acacia	Dixon	Technical Director, Brunswick County Schools
Bruce	Friend	Head of School Pine Springs Preparatory Academy, CSAB Member
Racheal	Gliniak	Nationally Certified School Psychologist, Wayne County Public Schools
Andrew	Harris	Chief Executive Officer Northeast Academy for Aerospace & Advanced Technologies
Martez	Hill	Chief Executive Officer, NC Cyber Academy
Karen	Hutson	EC Director, Hyde County Schools
Heather	Kaiser	Cumberland Virtual K-5 Teacher
Michael	Maher*	Executive Director, OLR, NCDPI
Florence	Martin	UNCC Professor in Ed Leadership & NCVPS Advisory Council
Ashley	McBride	Digital Learning Initiative Consultant, Digital Learning and Technologies, NCDPI
Rachel	McBroom	Chief Academic Officer, NC Virtual
Leah	Powell	Granville Academy Teacher/Online Program Lead
Kerry	Putnam	EC Director, Transylvania County Schools
Travis	Reeves	Superintendent, Surry County Schools
Katherine	Robinson	Mother of a full-time virtual student, NCVPS
Mark	Samberg	Director of IT Strategy and Shared Services, Digital Learning and Technologies, NCDPI
Marcia	Simmons	Head of School, NC Virtual Academy
Trip	Stallings	NC Cyber Academy Evaluation Consultant
Brian	Stephens	Director of Technology, NC Virtual
Matt	Stover	Superintendent, Catawba County Schools

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Sherry	Thomas	Director, Exceptional Children, NCDPI
Tom	Tomberlin	Director, Educator Recruitment and Support, NCDPI
Amy	White	North Central Education Region, State Board of Education
Stacey	Wilson-Norman	CAO, Cumberland County Public Schools
Vanessa	Wrenn*	Chief Information Officer, Digital Learning and Technologies, NCDPI

* Indicates Working Group Co-Chairs

- The Working Group researched and reviewed the following report requirement areas:
- Definitions of virtual instruction and virtual academies, including any differences in the definitions for charter schools and other PSUs.
- Requirements for authorization of virtual academies, including any differences in the requirements for charter schools and other PSUs.
- Additional requirements for virtual academies, including, but not limited to:
  - Infrastructure requirements, if any, such as access to internet connectivity, equipment, hardware, software, and technical support.
  - Instructional requirements, including student monitoring, attendance and testing requirements, measures for completion of instructional days and hours requirements, synchronous instruction minimums, and measures of course credit accrual, progress toward graduation, and course completion.
  - Personnel requirements, including professional development.
  - Participation requirements, including student eligibility and agreements for participation from students and parents.
  - Special education requirements.
  - Term of years for approval for a virtual academy and criteria for initial approval and renewal.
  - Distinctions in requirements for different types of PSUs.
  - A means for identifying students participating in virtual instruction that will allow assessment of that subgroup's performance and EVAAS scores for students receiving virtual instruction in a school that does not exclusively provide virtual instruction.

Definitions of virtual instruction and virtual academies, including any differences in the definitions for charter schools and other PSUs.

VIRTUAL INSTRUCTION

A method of teaching that is delivered online by a qualified education professional, who facilitates the course content, as outlined in the state learning standards, and supports student success.

VIRTUAL ACADEMIES

A credit bearing institution whose primary method of instruction is provided online through a combination of synchronous and/or asynchronous learning.

These definitions remain the same regardless of the PSU type to which they are being applied.

Requirements for authorization of virtual academies, including any differences in the requirements for charter schools and other PSUs.

Virtual academies should require the same authorization as their in-person counterparts.

For traditional school districts, the request for authorization should only require the request for a school number. For a virtual charter school, the request should be identical to applying for any public school charter.

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In the request for a charter, it should be clearly stated that the charter is a virtual academy.

Additional requirements for virtual academies.

INFRASTRUCTURE REQUIREMENTS, IF ANY, SUCH AS ACCESS TO INTERNET CONNECTIVITY, EQUIPMENT, HARDWARE, SOFTWARE, AND TECHNICAL SUPPORT.

The infrastructure of a virtual academy should allow staff, students, and families to have 24/7 access to necessary learning materials. Virtual academies can meet this need by ensuring that:

- Students and staff have access to sufficient bandwidth in schools and at home. For virtual learning sufficient means that Internet access is consistently available at a level of service and quality that broadband access does not present a barrier to virtual learning.
- Students and staff have access to mobile devices.
  - In addition to making devices available to students as needed, PSUs will need to be able to offer a device and/or adopt a Bring Your Own Device Policy to enable students to use the devices that best fit their learning preferences.
  - Devices used by students and staff need to be outfitted with camera and audio capabilities. Additional headsets, microphones, or webcams may need to be accessible to ensure these capabilities.
  - Devices provided to students need to meet the needs of the student, including accessibility needs for students with Individualized Education Plans. This may include supplementing devices with additional assistive/adaptive equipment.
  - PSUs will need to adopt and plan for sustainability with a consistent replacement cycle, based on the device type.

Software and/or applications that are made available to staff and students for virtual learning should:

- Provide the ability to monitor student performance and school-owned devices.
- Allow easy access to an appropriate Learning Management Platform as a single point-of-entry for all instructional materials and resources.
- Enable video conferencing and supervised text-based chat so students and teachers can connect synchronously as needed.

Assessments of the software and applications in use in virtual-learning environments should be reviewed on an ongoing basis to ensure students and staff have what is needed to provide instruction and maintain consistent communication. These assessments should ensure that resources are:

- Maintaining technical compatibility with the infrastructure of virtual learning.
- Interoperable and able to provide data to the Learning Management System.
- Meeting data privacy laws and standards along with cybersecurity best practices.
- Accessible to all students who are expected to use them, including all necessary supports for students with disabilities and/or unique learning needs.
- Aligned to North Carolina standards and are of high instructional value.

Students, staff, and parents need consistent access to technical support personnel. This includes being able to receive support remotely as needed, and availability of technical support should reflect the hours and timing of a virtual instructional day.

INSTRUCTIONAL REQUIREMENTS, INCLUDING STUDENT MONITORING, ATTENDANCE AND TESTING REQUIREMENTS, MEASURES FOR COMPLETION OF INSTRUCTIONAL DAYS AND HOURS REQUIREMENTS, SYNCHRONOUS INSTRUCTION MINIMUMS, AND MEASURES OF COURSE CREDIT ACCRUAL, PROGRESS TOWARD GRADUATION, AND COURSE COMPLETION.

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The instructional requirements for a virtual academy should be determined by the PSU and should be adapted to fit the needs of the student and course content.

- Students and parents should be able to access grades on a consistent basis. PSUs should identify a schedule for making grades available to families. This schedule is at the discretion of the PSU but should be clearly communicated with families.
- PSUs should make a clear policy for attendance that is communicated to families. The purpose of the attendance policy is to ensure students are making satisfactory progress to meet deadlines as posted for each course. Attendance policy and requirements must meet current state requirements related to the Principal Monthly Report and Average Daily Membership reporting per the Student Accounting System Manual.
- Federal and state assessments must be administered.
- Students must demonstrate proficiency of course content to earn credit for the course. Seat time should not be required to demonstrate proficiency in a learned topic.
- Synchronous instruction minimums should be at the discretion of the PSU.
- Final coursework grades should be reported and final decision on credit is determined by each PSU.
- Successful completion of coursework and/or demonstrated proficiency in the coursework will result in credit toward graduation.
- PSUs receive final grades for students and own the final decision on course grade and credits toward graduation.
- PSUs should follow the same class size rules they currently follow in an in-person school. PSUs have authority to adjust class size according to the needs of the students and the content of the course.

PERSONNEL REQUIREMENTS, INCLUDING PROFESSIONAL DEVELOPMENT.

Virtual academies should provide qualified professional, administrative, and support staff in alignment with current state allotment formulas to achieve the organization's mission and annual goals.

- Staff should meet the existing appropriate licensure and evaluation requirements for their positions as outlined in NC State Board of Education policies.
- In addition to enough instructional staff to cover the needs of all students enrolled, each virtual academy should provide the following digital teaching and learning support personnel as recommended in the NC Digital Learning Plan:
  - Instructional technology facilitator.
  - School library media coordinator.
  - Data manager.
  - Enough remote technicians to ensure minimal impact when technical issues arise.

Virtual academies should support faculty and staff by providing access and time to participate in professional learning communities (PLC) and ongoing, personalized, job-embedded professional development opportunities, which are aligned to the National Standards for Quality Online Teaching and the NC Digital Learning Competencies.

PARTICIPATION REQUIREMENTS, INCLUDING STUDENT ELIGIBILITY AND AGREEMENTS FOR PARTICIPATION FROM STUDENTS AND PARENTS.

Each PSU should create a profile of a successful online learning student to establish criteria for continued eligibility to participate in virtual instruction. This profile should be used to communicate the expectations of a student while he or she is enrolled in a virtual academy. To support this:

- PSUs should provide high quality, NCSCOS aligned content. To align with the National Standards for Quality Online Learning (NSQ).
- Courses should be designed with accessibility and universal design principles to meet the needs of

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all students.

- Students' online/virtual performance should be continually monitored, and appropriate interventions should be put in place to maintain on pace performance.
- PSUs have the authority to transition students to in-person schools to ensure students are in the most appropriate educational setting to achieve academic success.
- Virtual academies should be provided access to research-based best practices for successful online learning, including parent/student agreements, the application process, onsite support, which will be available to all virtual academies. This can be accomplished through support structures made available through NCDPI and/or a collaborative network of virtual academy leaders.
- PSUs should:
  - Provide an application/request form to attend the virtual academy.
  - Ensure parents agree for students to participate in virtual academies.
  - Provide parent resources.
  - Decide whether to provide a virtual academy and which grade levels will have access to virtual instruction with the primary goal to meet student, family, and community needs.
- NCDPI should provide support to virtual academies.

SPECIAL EDUCATION RECOMMENDATIONS

Students with disabilities (SWD) are entitled to a free, appropriate public education in the least restrictive environment. This includes the virtual environment. Denial of access to virtual academies solely on the fact a student has a disability is a violation of IDEA. Application guidelines cannot deny access for SWD. These recommendations should apply to students with Individualized Education Plans and those with 504 Plans.

- The student's IEP/ 504 team, including the parents/guardians of the student, should discuss placement in the virtual academy and plan for successful student entry if virtual instruction is selected.
- The IEP/ 504 team may consider a flexible schedule for SWD (hybrid & in-person) that may be required to meet all IEP services.
  - Transportation services may be required if hybrid is needed to deliver all services, including related services.
- PSUs may require additional staff to adequately serve students with disabilities virtually. This cannot be a barrier to providing this option for these students.
- In alignment with in-person schools, documentation of interventions prior to any student needing a referral to special education or additional special education services must be available.
- PSUs with a virtual academy shall ensure that the EC director or designee is monitoring IEPs and compliance for students that are enrolled in a Virtual Academy.

TERM OF YEARS FOR APPROVAL FOR A VIRTUAL ACADEMY AND CRITERIA FOR INITIAL APPROVAL AND RENEWAL

Virtual academies established in a traditional K-12 school district should be viewed the same as other schools within that district and should not be required to renew their school status. Virtual academies are required to participate in the same accountability model and subject to all reporting and accountability requirements. All required statewide testing must occur on-site at a school located in the district or another NCDPI approved physical site. Approval of a virtual academy should follow the same rules and regulations that are established for an in-person school.

Traditional charter schools do not have the authority to offer a virtual academy. Currently, two virtual charter schools are legislated to operate as a virtual school. Charter schools who wish to offer virtual instruction shall follow the legislated process to amend the existing charter. A charter school cannot establish a stand-alone virtual school, per SL 2018-5, Sec. 7.13. Charters need a process to offer virtual academies. Currently, charter schools' access virtual courses through NCVPS and via dual enrollment, available through community colleges, as part of the standard instructional program. Virtual academies established under a charter should be treated in the same manner as any in-person charter in terms of initial approval and renewal.

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DISTINCTIONS IN REQUIREMENTS FOR DIFFERENT TYPES OF PSUS.

Virtual academies should follow the same requirements as their in-person counterparts. Virtual Academies are held to the same state-level accountability, policies, and procedures; therefore, virtual academies shall follow the same existing requirements to establish and operate.

A MEANS FOR IDENTIFYING STUDENTS PARTICIPATING IN VIRTUAL INSTRUCTION THAT WILL ALLOW ASSESSMENT OF THAT SUBGROUP'S PERFORMANCE AND EVAAS SCORES FOR STUDENTS RECEIVING VIRTUAL INSTRUCTION IN A SCHOOL THAT DOES NOT EXCLUSIVELY PROVIDE VIRTUAL INSTRUCTION.

A virtual academy will have its own EVAAS scores reported under the school's number. All courses taken in a virtual format shall be coded to allow for performance tracking. This includes courses taken virtually through an in-person school or through a virtual school.

Conclusion

Many lessons were learned during emergency remote instruction. Students and teachers experienced remote learning under extreme circumstances, which is not to be confused with planned and intentional participation in virtual learning. Virtual instruction has been available in NC schools for nearly two decades. As a result of the pandemic, increased experience with virtual instruction and the benefits associated with virtual schooling has increased the demand for virtual academies. Schools are using virtual instruction to address the needs of the families they serve by providing flexibility in scheduling, improving course access, and better serving students with medical and social emotional needs. Virtual Academies offer flexibility for students to explore other endeavors such as arts, athletics, working internships, and meet other needs that would not be available while attending a fully in-person school. Schools have voiced their need to maintain a competitive approach to education by utilizing virtual instruction as part of standard instructional practice. Virtual Academies may be strengthened moving forward based on the recommendations in the report and summarized below.

SUMMARY OF RECOMMENDATIONS

Through the Working Group on Virtual Academies and consultation with school leaders, the following recommendations to support successful virtual academies are recommended:

- PSUs shall provide support to families to ensure that they have the information needed to select the best schooling options for each child, including the expectations on both students and parents/guardians for each schooling option.
- Virtual Academies follow policies, procedures, and requirements in place for in-person schools, to include educator evaluation.
- Virtual Academies that currently have a school number should not be required to relinquish that school number on June 30, 2022.
- PSUs without a virtual academy, who wish to develop a virtual academy, should be able to apply for a school number.
- SL2021-130, Section 3B.(c) prevents any school that did not have a school code prior to May 1, 2021, from using virtual instruction to satisfy the number of instructional days or hours June 30, 2022. We recommend that virtual instruction provided through a Virtual Academy be allowed to be used to satisfy instructional hours and days and that the issuance of school codes for Virtual Academies be resumed.
- All schools should meet the same accountability standards, regardless of instructional format. With separate school numbers, Virtual Academies and in-person schools can be directly compared and measured.
- Virtual Academies shall meet student needs by providing guidance and support that helps students perform successfully in virtual learning and provide a reasonable time for students to learn how to

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be effective in virtual learning prior to transitioning a student to in-person learning.

- Virtual Academies shall provide ongoing systemic monitoring of student progress and allow the transition of students to in-person learning during the current academic year if their learning needs cannot be met in a virtual school.
- Virtual Academies are responsible for providing all the education services and requirements as an in-person school, which includes, but is not limited to:
  - Special education services.
  - Administering and reporting of state assessments.
  - Guidance Counseling.
  - Reporting state and federal data.
- Internet access remains a barrier for access to virtual learning for many students. Efforts underway to address the "Broadband Gap" in North Carolina should be continued and expanded.
- SBE (State Board of Education) should adopt policy definitions of Virtual Instruction and Virtual Academies.
- The Student Information System should be adapted to fully track online course enrollment and outcomes.
- The Student Information System should support cross LEA (Local Education Agencies) enrollment to allow LEAs to form virtual learning partnerships between NCVPS and LEAs and LEA to LEA.
- NCDPI, in partnership with various stakeholders, should continue to research trends, practices and outcomes for all learners, especially younger students, in virtual academies.
- NCDPI should develop a model of systemic support during the planning and implementation phases of virtual academies. This should include ongoing monitoring of virtual learning, anchored in research and best practices.
- Charter schools need a path forward to offer expanded virtual options to meet their students' needs.
- A future study should be conducted to highlight effective practices in virtual learning in North Carolina by grade band.

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