

VIRTUAL SCHOOL PEDAGOGY: BELIEFS, GOALS, AND PRACTICES OF K-12
VIRTUAL SCHOOL TEACHERS

By

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To Linda and Luther

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LIST OF TERMS

Asynchronous	Online learning in which interaction between instructors and students occurs intermittently with time delays. Examples are self-paced courses taken via the Internet or CD-ROM, mentoring, online discussion groups, and e-mail (Moore & Kearsley, 1996).
Communication Tool	The synchronous or asynchronous telecommunication tools that are used in a virtual school course to facilitate student-teacher and student-student communication (Rice, 2006).
Distance Education	Formalized instructional learning where the time/geographic situation constrains learning by not affording in-person contact between student and instructor (King, 2001).
Online Teacher	A teacher leading a course that is delivered online for postsecondary or higher education students.
Synchronous	Online learning in which interaction between instructors and students occurs in “real time.” Examples are chat tools, instant messaging, and Web-conferencing software (Moore & Kearsley, 1996).
Virtual Education	Instruction during which students and teachers are separated by time and/or location and interact via computers and/or telecommunication technologies (NCES, 2006).
Virtual School	A public or private school that offers only virtual courses and generally does not have a physical facility that allows students to attend classes on site (NCES, 2006).
Virtual Teacher	A teacher leading a course that is delivered online for elementary, middle, or high school students.

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Major: Curriculum and Instruction

K-12 virtual schools provide online opportunities that give students access to anytime, anywhere learning. The educational access offered to students by virtual schools also serves the nation's educational agenda by providing an additional option for enacting school choice legislation. Virtual school courses also introduce students to valuable skills, such as communicating and collaborating online and accessing information on the Internet, which help to prepare students for joining a global technological workforce.

Just as teachers in face-to-face classroom settings, K-12 virtual school teachers serve as a cornerstone for online courses, directly impacting students' success through their orchestration of content, pedagogy, and technology. Understanding the instructional practices of virtual school teachers is vital to the field because of the increasing interest in virtual schooling and the important role teachers play in the courses offered. Although there is research-based evidence for the instructional practices used by teachers in face-to-face K-12 classrooms currently, there is little known about the practices of virtual school teachers.

The purpose of this study is to form an understanding of the pedagogic practices of K-12 virtual school teachers. Gaining teachers' perspectives about the use of general, content-based, and technology-based practices in their virtual school courses developed this understanding.

Using grounded theory methods, a recursive process of data collection and analysis was implemented in conjunction with the method of constant comparison to indicate repeating patterns and themes in participants' descriptions. The findings resulting from analysis highlight the relationship between the participants' beliefs, goals, and practices related to virtual school teaching. Furthermore, the outcomes of this study indicate several skill sets associated with virtual school teaching that have relevant implications for the training programs educating virtual school teachers, the developing body of policy underlying virtual schools, and future research.

CHAPTER 1 INTRODUCTION

Background

There are currently 90,000 student attending K-12 virtual schools across the United States (Watson & Ryan, 2007). These students can enroll in courses that span a variety of subjects from personal health and fitness to Japanese (SREB, 2006). K-12 virtual high schools afford access to educational opportunities that local, face-to-face schools are unable to provide. They expand curricular offerings (Blomeyer, 2002; Cavanaugh et al., 2004; Olson & Wisher, 2002; Waxman, Lin, & Michko, 2003), enable students to experience technology-rich interactions during content delivery (Berman & Tinker, 1997), and provide access to remedial and extended learning opportunities (NEA, 2006).

Teachers are critical to supporting student learning not only in face-to-face settings (Darling-Hammond & Youngs, 2002; Prawat 1992), but also in online learning environments (Beaudoin, 2002; Kurtz, Beaudoin, & Sagee, 2004). In online settings, teachers impact students' experiences and learning through their use of pedagogy and technology to match course content and the medium of delivery (O'Neil, 2006; Schoenfeld-Tacher & Persichitte, 2000). While researchers have developed a strong body of knowledge regarding the instructional practices of face-to-face teachers, K-12 virtual schooling still lacks a strong research base from which to inform policy and practice (Blomeyer, 2002; Cavanaugh et al., 2004). Therefore, it is critical to begin forming an understanding of the pedagogic strategies used by K-12 virtual school teachers (Yang & Cornelious, 2005).

Investigating the role of face-to-face teachers has been valuable for understanding their instructional practice (Leinhardt, 1990). However, teaching online requires skills that are unique from those used in face-to-face settings. Exploring the perceptions and practices of successful K-

12 virtual school teachers can further develop the body of work exploring the best practices for teaching courses in the online medium. This study will address the need for understanding the pedagogical practices associated with virtual school teaching by exploring the perspectives of successful K-12 virtual school teachers.

Problem Statement

K-12 virtual schools provide access to online opportunities that are critical for giving students access to anytime, anywhere learning (Joy & Garcia, 2000). The educational access offered to students by virtual schools also serves the nation's educational agenda by providing an additional option for enacting school choice legislation (Cavanaugh et al., 2004; NCES, 2005; Watson, Winograd, & Kalmon, 2004). Virtual school courses also introduce students to valuable skills, such as communicating and collaborating online and accessing information on the Internet, which help to prepare students for joining a global technological workforce (US Department of Education, 2005; Watson & Kalmon, 2006). Just as teachers in face-to-face classroom settings, K-12 virtual school teachers serve as a cornerstone for online courses, directly impacting students' potential for experiencing the benefits of virtual school courses through their orchestration of content, pedagogy, and technology (Pape, Adams, & Ribeiro, 2005).

Understanding the instructional practices of K-12 virtual school teachers is vital to the field because of the increasing educational need for virtual schools (Sadik, 2003; Rice, 2006) and the important role teachers play in the courses offered. Although there is research-based evidence for the instructional practices used by teachers in face-to-face K-12 schools (Cobb, McClain, de Silva Lamberg, & Dean, 2003; Porter, 2002 ; Shulman, 1986), there is currently little known about the practices of K-12 virtual school teachers (Garrison & Anderson, 2003). A number of studies suggest a similarity between the successful teaching strategies used in postsecondary

online settings and face-to-face educational settings (Bennett & Bennett, 2002; Goodyear, Salmon, Spector, Steeples, & Tickner, 2001; Ragan, 2000). The emphasis placed on content knowledge expertise (Shulman, 1986; Lee & Hirumi, 2004), effective use of communication strategies (Chickering & Gamson, 1987; Woods & Baker, 2004), and implementation of instructional design principles (Reigeluth, 1983; McLoughlin, 2002) to support student learning demonstrate points of similarity between research conducted in postsecondary online and face-to-face settings.

Research on face-to-face K-12 teachers provides a basis for understanding the skills and competencies associated with good instructional practice. One of the most important factors influencing good instructional practice in face-to-face classrooms is the teacher's depth and breadth of content-related knowledge (Brophy, 1982; Land & Smith, 1979). In addition to content-area expertise, teachers must demonstrate organizational skills in how they deliver content and communicate with students (Anderson, Evertson, & Emmer, 1980; Good, 1979). Also addressed by postsecondary online learning research is the importance of content knowledge and organizational skills for supporting and structuring student learning (Koszalka & Bianco, 2001; Ferdig, 2006; Kidney & Puckett, 2003). Closely linked with a teacher's organizational skills is the ability to implement appropriate classroom management techniques. This includes minimizing student disruption (Ornstein & Levine, 1981), transitioning between topics effectively (Brophy & Evertson, 1976), and monitoring student behavior (Brophy, 1983). Classroom management is addressed in postsecondary online research through the suggested use of course policies that acquaint students with what appropriate interactions looks like in the online setting (Waterhouse & Rogers, 2004) and the provision of instructional strategies for minimizing inappropriate or disruptive behavior (Davis, Farnham, & Jensen, 2002).

Research underlying instructional practice in face-to-face K-12 settings also address the use of skills directly related to structuring and delivering content. A primary task for designing instruction involves a teacher's dismantling and organizing of content to support student learning (Gagné, 1977). This includes the structuring and scaffolding of student learning by providing multiple opportunities for the students to interact with content and apply their knowledge (Gagné, 1977; Reigeluth, 1983). Equally emphasized in research exploring the instructional design strategies of effective postsecondary online courses is the selection of appropriate course tools (Koszalka & Ganesan, 2004) and pedagogic strategies (Kramer & Schmidt, 2001; Abel, 2005) that are necessary in order to maximize the effectiveness of the course environment. Feedback and responsiveness also emerge as important aspects of the teaching-learning process in both face-to-face and online environments. As students engage in the content and practice applying their knowledge, teachers must be responsive to accommodate gaps in the students' understanding by providing prompt, corrective feedback (Good, 1979; Powell, 1978; Anderson, 2004b). Equally emphasized in both face-to-face and postsecondary online research is the need for teachers to communicate with students regarding the students' overall performance and progress in the course (Swift & Gooding, 1983; Swan, Shea, Fredericksen, Pickett, Pelz, & Maher, 2000).

It is important to acknowledge the consistent appreciation and use of practices associated with some of the basic elements influencing student learning in both face-to-face and online settings. However, it is equally important to acknowledge that the direct transference of good instructional practice from face-to-face settings does not always translate to good teaching in online environments (Davis & Roblyer, 2005). Therefore, it is important to recognize the different sets of skills for teaching in postsecondary online learning environments. One such skill

is the ability of online teachers to be able to modify the instructional practices and pedagogical techniques used in face-to-face settings to match the medium of delivery in online environments (Boston, 2002; Lazarus, 2003; Savery, 2005; Tallent-Runnels et al., 2006). Often, this requires online teachers to incorporate additional skills into their roles, such as those of interaction facilitators and instructional designers (Easton, 2003). Online teachers must also develop skills to foster interaction and communication with and between students during the online learning experience. This requires the utilization of pedagogic techniques that draw on and integrate the available telecommunication tools to support student collaboration and knowledge acquisition (Rovai, 2001; Swan et al., 2000). Volery (2001) identifies postsecondary online teachers' use of communication tools to foster a high level of interaction as an important factor in facilitating student learning in online environments.

The skills needed for teaching in an online learning environment support a teacher's function as a point of intersection for pedagogy, technology, and content (Russell, 2004; Savery, 2005). The selection and coordination of pedagogy, technology, and content is a primary task for teachers in order to provide students with quality online learning opportunities (Kurtz et al., 2004; Olson & Wisher, 2002). Implementing these new strategies associated with the use of pedagogy, technology, and instructional design can require teachers to undergo a major shift from what they have experienced in face-to-face, offline settings (Coppa, 2004; Lee & Hirumi, 2004; O'Neil, 2006). The fact that there is currently no standard for preparing preservice or in-service teachers for the unique demands of teaching in an online environment presents a challenge to new virtual school teachers (Hsi, 1999; Cavanaugh & Blomeyer, 2007).

Some researchers have begun documenting the demands and challenges of postsecondary online teaching. While this research draws from the experiences of postsecondary online

teachers, the findings provide a context for understanding the demands and challenges experienced by K-12 virtual school teachers. Coppola (2002) found that postsecondary online teachers experience an increase in their teaching work load after making the transition from a face-to-face classroom to an online setting. The outcomes reported by Schoenfeld-Tacher & Persichitte (2000) elaborate on this finding, attributing the increase in the workload experienced to the adaptations teachers had to make to their existing knowledge and skills related to face-to-face teaching for the online setting. Research also indicates an increase in the effort that online teachers have to invest during the preparation and delivery of their course and course content (McKenzie, Mins, Bennett, & Waugh, 2000; Smith et al., 2004; C. Wilson, 2001). In addition, postsecondary online teachers report an increase on the demand of their time to satisfy the managerial and administrative requirements of their role (Kurtz et al., 2004; Schoenfeld-Tacher & Persichitte, 2000).

In addition to the demands postsecondary online teachers experience, these teachers also confront new challenges associated with their instructional role. The lack of pedagogical preparation and access to technical support is a common challenge identified by online teachers. While surveying online teachers for faculty satisfaction, Smith (2004) found that many reported not feeling prepared for teaching online, particularly in regard to the design and delivery of content that was best suited for the medium. In addition to the design and delivery of content, online teachers reported the need for preparation in the theoretical and pedagogical concepts associated with online teaching (Husman & Miller, 2001; G. Wilson & Stacey, 2004). Coupled with the need for more theoretical and conceptual knowledge is the need for technical knowledge, since online teachers identified the lack of technology-related support as a barrier to effective online instruction (Bonk, 2001; Frederickson, Pickett, Swan, Pelz, & Shea, 2000;

Hartman, Dziuban, & Moskal, 2000). Donlevy (2003) specified the critical nature of technical support for virtual school teachers, emphasizing it as a necessary component for supporting their success.

The lingering questions related to the demands of teaching postsecondary online courses are equally important to consider in relation to the K-12 virtual school context. K-12 virtual schooling is developing as a field of research (Cavanaugh et al., 2004). Because this body of work lacks a developed foundation of knowledge regarding virtual school teachers and their instructional practices, many of the claims made draw from research investigating postsecondary online teaching (Blomeyer, 2002). Aside from the demands and challenges associated with teaching in postsecondary online settings, research suggests that virtual schools demonstrate a complexity that distinguishes them from other online learning contexts (Ferdig, DiPietro, & Papanastasiou, 2005). Therefore, further investigation needs to be conducted in order to understand these distinctions in relation to the teaching and learning process engaged within these environments (Vrasidas, Zembylas, & Chamberlain, 2003). A primary area of K-12 virtual schooling that needs research to begin forming an understanding for its distinguishing characteristics is the instructional practices of successful virtual school teachers.

In face-to-face settings, instructional practices are made up of the strategies, activities, and techniques a teacher implements during a course to support students' achievement (Gauthier, Dembele, Bissonnette, & Richard, 2005). Serving the selection of instructional strategies, activities, and techniques is a teacher's understanding regarding the relationship between content and pedagogical knowledge (Shulman, 1986). Teachers draw from their knowledge of pedagogy and their understanding of the content to develop a set of instructional practices that demonstrates the best fit for both the student and the learning context. Ideally, this consideration

is also made for the use of technology, with a teacher's pedagogical content knowledge directing its selection and integration to facilitate student learning (Ferdig, 2006). This research demonstrates an understanding of the knowledge that directs the decisions and justifications made by face-to-face teachers for the practices they use. Without a developed body of research focused on the practices of K-12 virtual school teaching, the field of virtual schooling lacks an understanding for the knowledge and decisions directing the practices K-12 virtual school teachers use.

In order to understand the practices of successful virtual school teachers, there is a current need for research that explores the perceptions held by K-12 virtual school teachers in regard to their instructional practice (Frydenberg, 2002; Kurtz et al., 2004; Rice, 2006). Research in face-to-face learning environments demonstrates the value of capturing teachers' perceptions for understanding the relationship between their beliefs about teaching and their instructional practices (Feiman-Nemser, 2001; Prawat 1992; Winne & Marx, 1982). Research exploring the translation of teacher's beliefs into practice has been a critical component for understanding the underlying factors influencing a teacher's selection and implementation of instructional practices (Kagan, 1992). The perspectives of virtual school teachers remain relatively unexplored, leaving a gap of understanding about how their beliefs translate to the pedagogic practices they use in the virtual course setting. Exploring this area of research is not only valuable for understanding instructional practice in K-12 virtual school settings, but also valuable for identifying the best practices associated with the preparation of K-12 virtual school teachers and recommendations for the developing policy surrounding virtual schools. In order to contribute to this area of research, the following question was developed in order to direct the design and implementation of this study: "What are the pedagogical practices of successful virtual school teachers?"

Purpose and Significance

This study aims to expand the existing body of research for virtual schooling by focusing on an underexplored area: successful virtual school teachers' perceptions of their instructional roles and instructional practices. Teachers are the figureheads in virtual school courses, yet there is currently little known about the instructional practices of successful teachers in these environments or their firsthand perceptions of the roles they fill (Kurtz, Beaudoin, & Sagee, 2004; Rice, 2006). *Successful* is defined by teaching experience and certification status. Defining successful virtual school teachers this way draws support from research that indicates a positive relationship between the amount of experience a face-to-face teacher has, along with the certifications held, and the success of their instructional practices (Darling-Hammond, Berry, & Thoreson, 2001; Darling-Hammond & Youngs, 2002; Kagan, 1992). Given that there is no research defining success in terms of K-12 virtual school teaching, these criteria will serve as a starting point, after which success will be defined further using the research outcomes associated with this study.

Understanding the instructional practices of successful online teachers by acknowledging their roles from a firsthand perspective can make a significant contribution to the developing body of research focused on teachers in the K-12 context of virtual schooling. This study, therefore, suggests that exploring teachers' perceptions of their instructional roles can provide valuable insights into what makes a successful online teacher within the K-12 context of online education. The knowledge gained from investigating the perspectives of successful virtual school teachers has significant impact on four areas of virtual school research.

The first area of impact is on the preservice teacher preparation and education programs. Although national organizations have published best-practices documents to guide the use of instructional practices by teachers of virtual school courses, these recommendations are not

research based. The building body of research focusing on virtual schooling is in need of evidence on teaching in these settings to support the development of programs to prepare new teachers for the virtual school teaching experience (Davis & Niederhauser, 2007; Yang & Cornelious, 2005). This study addresses this gap in the literature by sampling and interviewing participants who are currently engaged in online teaching in an effort to explore their instructional practices. Exploring the instructional practices of virtual school teachers can provide an understanding of the nuances of teaching in these environments and reveal elements of these teachers' practices that should be considered by preservice programs in preparation of novice teachers for the experience of online teaching.

A second area of impact is on the current understanding for the role of course content in directing the selection of practices virtual school teachers use in the courses they teach. Sampling participants that teach different content area subjects provides an opportunity to gain insight into how virtual school teacher's use practices differently based on the course content they are teaching. Current best-practices publications provide a good starting point for virtual school teachers to select and implement practices, but do not address differences or variations for how the practices may be used within the context of a specific content area course. The outcomes of this study can indicate variations in the practices virtual school teacher's select and implement based on the course content they are teaching. Gaining knowledge about the content based practices of virtual school teachers will be relevant for understanding the role content knowledge in the translation of participant's beliefs into practice. The importance of exploring differing practices in relation to content area also has significance for a third aspect of virtual school research: professional development.

A third area of impact is on the content of professional development programs offered to K-12 virtual school teachers. The content addressed by professional development programs varies across state-led virtual schools. Yet, these programs are a cornerstone of the support and learning opportunities available to virtual school teachers. The outcomes of this study will inform the curriculum of professional development programs by addressing the pedagogic practices of K-12 virtual school teachers, as well as the technology based skills required to facilitate the delivery of instruction in virtual course environments. Although all virtual school courses are delivered online, there are no criteria facilitating the selection of courseware tools and online resources to support student learning in general or in regards to various content areas (Ferdig et al., 2005). The findings of this study will provide a basis for extending in-service teachers' knowledge about the selection of pedagogy and technology that are appropriately matched to the content and medium of delivery (Russell, 2004).

Finally, the fourth area impacted by the results of this study is the developing body of policy and legislation surrounding virtual schools. Researchers have started documenting the adaptation of face-to-face instructional practices for virtual course settings in the guidelines and standards produced by leading organizations in teaching and learning. The principles of online teaching addressed in best-practices literature are similar to those from face-to-face settings based on the mutual emphasis placed on content area expertise, communication skills, and instructional design. The American Federation of Teachers (AFT, 2001), Sloan-C (Sloan-C, 2002), and the American Distance Education council (ADE, 2003) has each published recommendations and handbooks for teaching online courses that identify general practices associated with course effectiveness. In 2006, the South Regional Educational Board (SREB, 2006) and the National Education Association (NEA, 2006) released similar guidelines

specifically targeting online teaching in secondary education. Although the SREB and NEA documents provide a basis for understanding instructional effectiveness and course design for online settings, the adaptation of face-to-face practices contained in these documents fails to address the unique skills required to teach virtual school courses, thereby indicating the need for research that focuses on the instructional practices of teachers in K-12 virtual school settings.

Although the concern for preparing quality instructors in face-to-face settings is mirrored by the concerns of virtual schools (SREB, 2003), in online environments this concept is complicated by the unique skills required of virtual school teachers. As new policy and legislation is written that will influence the formation of state-led virtual schools, research is needed that defines the characteristics of quality virtual school teachers (Watson & Kalmon, 2006). Because this study focuses on successful virtual school teachers, indications of quality are a potential outcome and can impact policy by providing a basis for establishing virtual school teaching as an area of professional certification.

Delimitations

In order to explore the firsthand experiences of teachers in virtual schools, this study is based on data collected through a series of qualitative interviews conducted with individuals currently teaching virtual school courses. The design of this study is addressed in detail in chapter 3. However, it is worth noting that because of the reliance upon teachers' voices, the selection of these teachers is an important element of the research design, and consideration of sampling is, therefore, a key issue. A sampling strategy was designed in relation to a number of key qualities, including the amount of experience participants had with both face-to-face and online teaching, the content area of the courses they taught, the grade level of the student audience, and whether the courses taught were general or advanced placement.

Interviews were conducted using a telecommunication technology that supports real-time exchanges between individuals in order to emulate the flow of conversation in face-to-face interview scenarios. In addition to providing a means for conducting the interviews, the telecommunication software also recorded the conversations, capturing the communication of the participants, including their vocal intonations and inflections as well as any textual communication transmitted using the instant messaging feature. Capturing these subtle forms of communication was valuable for the qualitative analysis that was conducted on the data collected. A discussion of the methodological issues associated with the use of this software is presented in chapter 3.

Summary

In this chapter, an argument was presented that established the need for research exploring the practices of K-12 virtual school teachers. This study will begin addressing this need by forming an understanding of the pedagogic practices of successful virtual school teachers by acquiring the perspectives of those currently teaching K-12 virtual school courses. Certification status and teaching experience serve to define the term successful in this study and provide a basis for the selection criteria described in chapter 3. The results of this study, which will provide a means for understanding the pedagogic practices of successful K-12 virtual school teachers, has implications for preservice and in-service training, the developing body of policy underlying virtual schools, and future research.

CHAPTER 2 LITERATURE REVIEW

Introduction

Teachers are critical factors that influence student success in K-12 virtual school courses. While the body of research associated with virtual schooling continues to grow, few investigations have examined the perspectives and instructional practices of successful K-12 virtual school teachers. The goal of this chapter is to explore the current state of virtual school research by establishing it within the context of existing research that addresses the instructional practices and perspectives of teachers in face-to-face and postsecondary online settings. To achieve this goal, the chapter is organized into four parts. The first part introduces research underlying the instructional practices of face-to-face and postsecondary online teachers based on three areas of continuity: pedagogical technique, communication, and instructional design. The second part introduces research from the field of postsecondary online research to identify the unique characteristics associated with the practice of teaching in postsecondary online settings. The third part focuses on research investigating the relationship between teachers' perspectives and their instructional practices in face-to-face and postsecondary online settings. Finally, the fourth part examines literature relating to virtual schools and K-12 virtual school teaching. The review of this literature will establish a historical context for virtual schooling and provide a basis for discussing the elements that distinguish virtual school teachers from online teachers in postsecondary settings. This chapter concludes with a summary of the literature and a discussion regarding its relevance for this study.

Part 1: Literature Exploring the Pedagogical, Communication, and Instructional Design Practices of Face-to-Face and Online Teachers

There are similarities between the practices associated with successful teaching in face-to-face settings and successful teaching in postsecondary online environments. These similarities

can be categorized within three areas of instructional practice, which are included as subheadings in this section: pedagogical practices, methods of communication, and instructional design strategies. The first presentation of literature outlines the adaptations of successful face-to-face pedagogical practices associated with these three areas that have been successful in online educational environments. The second and third subheadings follow the same format and introduce literature on communication and instructional design to illustrate the relationship between the use of practices in face-to-face and postsecondary online settings. The conversations associated with each of these subheadings provide a basis for understanding the commonalities among practices used in face-to-face and postsecondary online settings and sets the stage for introducing the unique skills required for teaching postsecondary online courses.

Pedagogy and Practice

Face-to-face teachers

Pedagogical practices are strategies that teachers implement to facilitate the content knowledge development of students. The amount of knowledge teachers have about the content they are teaching is a foundational prerequisite for the use of pedagogical practices and strategies that effectively support student learning (van Driel, Verloop, & de Vos, 1998). The experience and depth of knowledge associated with particular content areas also direct teachers' selections of content topics, materials, and strategies, as well as their abilities to perceive students' needs (Fenstermacher & Richardson, 2005; Gudmundsdottir, 1990; Shulman, 1999). McCombs and Whisler (1997) provide one such example that identifies the role of content knowledge as a critical factor influencing a teacher's ability to implement learner-centered strategies, which are techniques used to focus instruction on the interests and needs of the student. The use of learner-centered strategies requires teachers to draw together knowledge of content and student background to deliver instruction in a way that preemptively addresses the common

preconceptions and misconceptions students have for a particular topic (Feiman-Nemser, 2001; Shulman, 1999). Teachers' abilities to implement practices based on their extensive content knowledge exemplifies what is called "craft knowledge" and supports their implementation of a multifaceted approach to developing student learning (Leinhardt, 1990; van Driel et al., 1998).

In 1987 Chickering and Gamson reviewed and synthesized research focused on the successful practices associated with teaching in face-to-face, postsecondary settings. Chickering and Gamson presented the outcome of the synthesis in the form of seven recommendations for implementing learner-centered strategies. Based on research investigating face-to-face teaching in postsecondary settings, the following list summarizes important points to consider for implementing successful instructional practices: (1) encouraging contacts between students and faculty, (2) developing reciprocity and cooperation among students, (3) using active learning techniques, (4) giving prompt feedback, (5) emphasizing time on task, (6) communicating high expectations, and (7) respecting diverse talents and ways of learning. This list justly represents some of the skills associated with successful instructional practices. However, other skills should also be considered, such as those associated with organizational and managerial abilities. Anderson, Evertson, and Emmer (1980) found that organizational skills are closely tied to teaching effectiveness and positively impact student learning. Likewise, a teacher's ability to manage the classroom, which includes monitoring student learning and giving feedback to students throughout the learning process, also demonstrates a positive effect on student outcomes (Brophy, 1983; Emmer, Evertson, & Anderson, 1980).

Postsecondary online teachers

The foundational techniques utilized by successful teachers in face-to-face settings are resonant in those used by successful teachers in postsecondary online settings. In some cases, there is a direct application of successful face-to-face practices, without any adaptation for use in

online settings (Ragan, 2000). In postsecondary online learning environments, content knowledge underlies a teacher's ability to facilitate student learning by matching appropriate practices with the topic of study (Anderson, 2004a, 2004b). In addition, extensive content knowledge supports the teacher's selection and utilization of resources that can prevent or correct student misconceptions of content and scaffold the learning process (Anderson, 2004a; Anderson, Rourke, Archer, & Garrison, 2001). In their study of online learning environments, Lee and Hirumi (2004) found that a teacher's ability to organize content was just as important as his or her depth and breadth of content knowledge. The knowledge and organizational abilities of an online instructor form the foundation of instructional practice and facilitate the use of learner-centered teaching strategies (Goc Karp & Woods, 2003; Graham, Cagiltay, Craner, Lim, & Duffy, 2000).

The organizational ability of online teachers not only supports student learning, but also has a direct impact on course effectiveness and student satisfaction (DeBourgh, 1999; Lee & Hirumi, 2004; Savery, 2005; Volery, 2001). Bellon and Oates (2002) identify the organization of a course and course content as critical factors for establishing student confidence and supporting the students' active involvement in the learning process. Both the knowledge and organizational abilities of an online instructor come together and support the use of learner-centered teaching strategies (Schoenfeld-Tacher & Persichitte, 2000). The ability to apply learner-centered strategies in order to account for the variation of learning styles in a course is critical for supporting student success (Graham, Cagiltay, Lim, Craner, & Duffy, 2001). In 2001 Graham et al. adapted Chickering and Gamson's (1987) seven principles of effective classroom instruction for the postsecondary online environment, providing a good example of how traditional practices have been adapted to better suit an online setting (Graham et al.). In order to illustrate how the

principles were adapted, Table 2.1 presents the original seven and those adapted by Graham et al. (2001), which specified conditions for their implementation.

Communication

Face-to-face teachers

The student-teacher interaction that takes place in online course environments lies at the core of learning (Richmond, Gorham, & McCroskey, 1987; Gorham, 1988). While there are many ways to support this interaction using a variety of technologies, there are some core concepts related to student-teacher interaction that have demonstrated effectiveness in face-to-face classrooms. One such concept is the ability of teachers to communicate content-related information clearly with students by using their disciplinary knowledge to design instructional messages that account for the multiple ways students can interpret them (Land & Smith, 1979; Winne & Marx, 1982).

In addition to being clear communicators, teachers in face-to-face classrooms must closely monitor student understanding by using strategies to guide interactions (O'Neill, 1988; Rosenshine & Stevens, 1986). *Wait time* is an instructional strategy for monitoring student knowledge that utilizes a pause before providing an answer to a question that a teacher has posed to a class. Research indicates that the use of wait time increases student responses by providing an opportunity for students to think about the question and formulate a response, hence demonstrating their knowledge (Powell, 1978; Swift & Gooding, 1983). Teachers in face-to-face classrooms also use strategies that foster the formation of student community, which implies the cooperation of students during the knowledge-building process (Bryk & Driscoll, 1988; Chickering & Gamson, 1999).

Postsecondary online teachers

Consistent with face-to-face settings, both the utilization of strategies to support student-to-student cooperation (Graham et al., 2000) and the utilization of activities that engage students as active learners are valuable to supporting learning (Keeton, 2004; Lin, 2003; Palloff & Pratt, 1999). Having an extensive base of content knowledge allows online instructors to structure content in a way that provides students with multiple opportunities to interact with the content, with instructors, and with each other by making variations of the information accessible (McCombs & Vakilia, 2005; Scheines, Leinhardt, Smith, & Cho, 2006). The utilization of a learner-centered framework serves to integrate the interests of students into the process of learning (Richardson, Long, & Woodley, 2003). This process is enhanced by student-teacher communication (Anderson, 2004a; Liu, Bonk, Magjuka, Lee, & Su, 2005) and encourages teachers to build relationships with students to foster academic success (Coppola, 2002).

All teachers, whether teaching face-to-face or postsecondary online courses, need to be clear communicators in order to provide instruction and feedback in an understandable manner to students (Chickering & Ehrmann, 1996). However, it is suggested that online teachers require more communication skills as they must excel at both verbal and written forms of communication (Abel, 2005). The textual focus of online environments to communicate deadlines, requirements, and expectations to students requires teachers to be skilled in written communication (Kurtz, Beaudoin, & Sagee, 2004). In addition, the use of both textual and verbal communication is critical in order to provide students with valuable feedback and instructional support using the tools native to the environment—both digital (Internet, messaging, e-mail, and digital telephones) and nondigital (analog telephones) tools (Graham et al., 2000). Both instructor participation and interaction with students in online courses emerge as critical elements of course effectiveness (Smith, 2005), as the psychological closeness between student

and instructor demonstrates a close tie to student satisfaction (Blignaut & Trollip, 2003; Woods & Baker, 2004). Online teachers should show students how to communicate and support the formation of community by example (Gunawardena, 1995), through being responsive to student postings and giving feedback (Rourke, Anderson, Garrison, & Archer, 1999).

Implementing a flexible course design that gives students opportunities to exercise critical thinking and develop ideas based on their own interests is another instructional strategy that fosters the formation of community (Palloff & Pratt, 1999). For example, findings published by Palloff and Pratt suggest allowing students to communicate among themselves and share the resources they find helpful for completing assignments to enhance existing community relationships. The formation of community can also be supported by providing students with a social space to discuss non-course-related material (Oren, Mioduser, & Nachmias, 2002; Rovai, 2001, 2002; Swan et al., 2000). Swan et al. found that contact with the instructor and active discussion with peers, along with consistency in course design, significantly influence the success of online courses. Rovai (2001, 2002) identifies seven factors found to promote a sense of community that sufficiently summarizes the practices discussed thus far, they are: (1) transactional distance, (2) social presence, (3) social equality, (4) small-group activities, (5) group facilitation, (6) teaching style and learning stage, and (7) community size (Rovai, 2001, 2002).

Instructional Design

Face-to-face teachers

Instructional design strategies are those practices an instructor uses to structure content and select activities to deliver that content both in a way that is appropriate for the student population (in regard to age group and grade level) and in a way that ensures that the established learning goals for the content are met (Porter, 2002). The appropriate design of learning materials and the

design of organizational structures of courses are important practices for face-to-face and postsecondary online instructors (Hein & Budny, 1999). Consistent themes among researchers investigating the appropriate design of materials equally emphasize the need to introduce, guide, and assess students' knowledge of content (Gagné, 1977; Reigeluth, 1983). The ultimate goal of designing content is to scaffold student learning by providing students with multiple opportunities to practice and receive feedback on their knowledge (Gauthier, Dembele, Bissonnette, & Richard, 2005).

Postsecondary online teachers

In online learning environments, it is equally important for online teachers to draw from the essential principles of instructional design (Kidney & Puckett, 2003), as it is considered by some to be the primary determinant of course effectiveness (Ally, 2004; Rovai, 2002). Activities should reflect the community of the course by providing students with individual and collaborative opportunities to complete work (Cyrs, 1997). The use of various multimedia and Web-based tools should be considered in relation to the content. Integrated in relation to the instructional purpose of the activity, these tools can offer students opportunities to develop their knowledge as well as attend to their varying styles of learning by presenting content in multiple formats (Koszalka & Bianco, 2001; Koszalka & Ganesan, 2004). Kramer and Schmidt (2001) discuss the value of presenting students with multiple perspectives related to a topic and its relevance for providing cognitive flexibility.

Part 2: Literature Exploring the Unique Practices of Postsecondary Online Teachers

Research exploring the skills and practices of successful postsecondary online teachers indicates a distinct set of roles and competencies that are necessary for teachers to possess in order to effectively support student success these environments (Volery, 2001; Kurtz, Beaudoin & Sagee, 2004; Savery, 2005). In the following subheadings, the unique skills and practices of

teachers in postsecondary online settings are explored in relation to pedagogy and practice, communication, and instructional design.

Pedagogy and Practice

Postsecondary online teachers must adequately transition their roles and the practices they use to best suit the online setting (Egan & Akdere, 2005). Part of this transition requires that online teachers adapt their practices to accommodate the self-directed nature of online learners (Spector & De la Teja, 2001; Vandergrift, 2002) and the online learning environment (Easton, 2003). It is then important for online teachers to provide students with a certain amount of autonomy to facilitate their feelings of ownership with regard to the course and its content (Picciano, 2002). Further supporting students' ownership of and engagement with content is the use of instructional strategies that scaffold and guide students interaction with the content (McCombs & Vakilia, 2005). This involves providing students with multiple opportunities to interact with content that is in varying formats such as text, audio, and video (Johnson & Aragon 2003; Kramer & Schmidt, 2001; Vogel & Oliver, 2006). Making content accessible in varying ways supports learning for students with varying differences and capabilities.

Communication

In addition to transitioning pedagogic practices, postsecondary online teachers must also strive to establish communication skills that are appropriate for the online setting (Swan et al., 2000). The amount of interaction a student has with an online teacher during a course directly relates to the student's satisfaction and judgments related to his or her quality of learning (Rovai, 2003; Glenn, Jones, & Hoyt, 2003). Similarly, unique to the online setting is the need for online teachers to use specific strategies in order to establish presence in online courses (Anderson, Rourke, Archer, & Garrison, 2001). Establishing presence in a course facilitates relationships

with students and is demonstrated through an online teacher's responsiveness and participation in all areas of the online environment (Wilson & Stacey, 2003).

Communication is also used to direct and correct students' knowledge (Anderson, 2004b). Postsecondary online teachers guide student knowledge by using communication techniques, such as questioning strategies (Cyrs, 1997) and discussion prompts to initiate critical dialogue between students. Online teachers implementing practices to prompt dialogues between students and participating in student dialogues by providing feedback also supports the use of critical thinking skills that expands students content knowledge development (Swan, 2004; Koszalka & Ganesan, 2004). Implementing practices that utilize questioning strategies and discussion prompts afford postsecondary online teachers the opportunity to identify gaps in students' knowledge and, then select practices to redirect knowledge accordingly (Woods & Ebersole, 2003).

Instructional Design

Optimizing content to suit online delivery is an important aspect for postsecondary online teachers to consider (DeBorough, 1999). Regardless of whether a postsecondary online teacher is working with a pre-designed course or developing a course from scratch, it is important to ensure that the course structure supports the nature and complexity of the content (Konings, Brand-Gruwel, & van Merriënboer, 2005). This requires structuring content to support students progressive development of knowledge along with the integration of activities into the course structure to assess students knowledge to ensure specific content-related goals are met (Kidney & Puckett, 2003; Koszalka & Bianco, 2001; Simonson et al., 2003). In addition, an online teacher must make technological choices that influence the opportunities he or she can provide for extending and remediating student knowledge (Goodyear et al., 2001). While the unique characteristics of postsecondary online teachers are still in need of development, existing

research at least provides a basis for understanding some key points on which these characteristics differ from those of teachers in face-to-face settings. In summation, existing research identifies distinctions of postsecondary online teachers in relation to three areas:

- The instructional practices they use to facilitate students' content learning and the adaptation of those practices in order to take maximum advantage of the affordances offered by the online medium
- The communication practices they use with students to provide directive feedback and engage in dialogue with students that facilitates the students' learning of content.
- The instructional design practices they use to design and deliver content that is the best fit for both the online medium and the area of study.

Part 3: Literature Exploring Teacher Perspectives

Face-to-Face Teachers

The views teachers have regarding the nature of knowledge and cognition reflect their epistemological perspective, which influences their selection of instructional practices and strategies (Pajares, 1992). Investigations into teacher perspectives have yielded to educational researchers not only a better understanding of the relationship between theory and practice, but also a better understanding of how beliefs impact practice (Fenstermacher, 1978).

Epistemological beliefs provide a basis for teachers to conceive of general practices, but it is the interaction of these beliefs with those concerning the content area that guide the practices a teacher uses in the classroom (Kagan, 1992; Winne & Marx, 1982). Teachers content area beliefs are closely tied to the practices they use (Richardson, 1994; Nespor, 1997) and impact their ability to scaffold, structure, and enhance instructional experiences (Shulman, 1999; Kagan, 1992; Prime & Miranda, 2006). Content area beliefs also impact a teachers ability to assess student knowledge and learning (Prawat, 1992). Gaining insight into these practices has relevance not only for understanding teacher performance (Blase, 1986), but also for providing guidance for how to equip preservice teachers with the appropriate skills to enter the field (Clark, 1988; Feiman-Nemser, 2001).

Postsecondary Online Teachers

Research exploring the perspectives of postsecondary online teachers provides a means for understanding the challenges they experience. A basic challenge postsecondary online teachers experience is a lack of preparation for teaching in a Web-based setting (McKenzie, Mins, Bennett, & Waugh, 2000; Bonk, 2001; Wilson, 2001). The lack of preparation is compounded by the fact that many online teachers feel they do not get enough technical (Schifter, 2002) and administrative (Betts, 1998) support. Another challenge postsecondary online teachers face is the increased amount of time that is required to teach an online course (Jones, Asensio, & Goodyear, 2000).

Exploring the common elements that make up the practice of teaching in both face-to-face and postsecondary online environments provides a means for understanding the similarities and differences between the two settings. Perhaps the most striking distinction one finds in making this comparison is the lack of research that explores the underlying beliefs of postsecondary online teachers. Although the knowledge gained about the challenges these teachers experience is important, gaining the teachers' perspectives for the beliefs and practices would make a valuable contribution to the existing body of postsecondary online learning research.

Part 4: Literature Exploring the Practices of K-12 Virtual School Teaching

The purpose and goal of K-12 virtual schools have evolved over an 11-year history. A main outcome of this evolution is the transition of virtual schools from entities that function to provide students access to elective or extensive coursework to ones that provide students with access to an alternative environment for completing core high school requirements needed for graduation (Watson, Winograd, & Kalmon, 2004; Pape, Adams, & Ribeiro, 2005). Although there are many variations in the form and structure of K-12 virtual schools across the United States, they all exist to provide a valuable service to both students and the educational system.

The differing organizational structures of virtual schools represent one element of the virtual schools' complexity, as they serve their purpose—regardless of the underlying organizational model—to coordinate teachers, administrators, and support staff to deliver courses to students via telecommunication technologies. Considering the newness of these educational institutions and their varying forms, it is not surprising that many elements of their complexity remain unexplored. One such element is explored by this study, the instructional practices of successful K-12 virtual school teachers. Beginning with a brief historical overview, the literature contained in this section provides a context for exploring the unique characteristics of virtual school teachers and the instructional practices they use in the courses they teach. Following the historical overview is an examination of a comparison made between the instructional practices of teachers in virtual school settings and the instructional practices of teachers in postsecondary online settings. This discussion serves as a framework for presenting the small body of research that begins to identify the unique skills required of virtual school teachers. This chapter concludes by proposing K-12 virtual school teaching as an area in need of research, and then suggests how this evident gap in research could be addressed by studies exploring the perspectives K-12 virtual school teachers.

History and Context

The term *virtual high school* first became popular in the mid-90s with the first federally funded initiative, the Challenge Grant program, designed to provide students with any time, any place access to education (Kozma, Zucker, & Espinoza, 1998). The Virtual High School Consortium came into being in 1996 after receiving a US\$7.4 million Challenge Grant to establish a framework both for delivering K-12 education online as well as developing a series of online courses for high schools in coordination with the Concord Consortium. During its first year (1997–98), the Consortium offered 29 Internet-based, credit-bearing courses to about 500

students in 27 schools across 10 states. By the year 2000 the Consortium had grown dramatically, enrolling over 3,000 students from 34 states and eight foreign countries in 1 of the 150 courses offered (Kozma et al., 2000).

A multitude of interacting factors lies at the foundation of virtual schools, contributing to their complexity as educational environments. There are internal factors that contribute to the virtual schools' complex nature, such as its organizational structure, courses, students, and teachers (Ferdig, DiPietro, & Papanastasiou, 2005). Adding to this list are the external factors that influence the functioning of virtual schools, such as the governing policy, parents, and contacts serving to provide support within the students' local community (Cavanaugh, Bosnick, Hess, Scott, & Gillan, 2005). In order to develop an understanding of the bigger picture of virtual schooling, there is a need for research that focuses on the underpinning variables.

While the first virtual school functioned as an independent institution, subsequent virtual schools took on the form of varying administrative and program models. Watson (2007) identifies four types of administrative or programs models associated with K-12 virtual schooling. Table 2.2 outlines the four programs (state-led online programs, state-led online initiatives, full-time online programs, and district programs) and provides distinctions of each. Of the varying models, only state-led programs offer students an opportunity to take core, for-credit courses online that count toward the students' graduation requirements (Rice, 2006; Watson & Kalmon, 2006). Variations in the administrative model and organizational structure of a virtual school complicate the formation of a unified understanding regarding virtual school teachers and their practices. Differences in course management systems, course development strategies, teacher employment status (full-time or part-time), and professional development opportunities offered are just some of the aspects that could vary among virtual schools

(Vrasidas, Zembylas, & Chamberlain, 2003). There are also variations that potentially exist within a single school that affect the formation of an understanding of virtual school teaching. Some of these issues, such as the instructional level of a course, are familiar to those in face-to-face settings, while others, such as course pacing, are unique to virtual schools. Although there is still much to be learned about virtual schooling and the forms of learning taking place in virtual schools, there are unique characteristics distinguishing virtual school teachers from teachers in both face-to-face and postsecondary online settings.

In the section that follows, key points drawn from best-practice documents, developed to guide the practices of postsecondary online teachers and K-12 virtual school teachers, will be discussed to highlight the consistencies and differences of the practices used by teachers associated with each instructional setting. This discussion also provides a means for addressing those aspects unique to virtual schooling and further justifies the need to explore the practices associated with virtual school teaching separately from postsecondary online learning contexts.

Best Practices in Postsecondary and K-12 Virtual School Teaching

In 2000 the American Federation of Teachers (AFT) produced *Distance Education: Guidelines* for good practices based on a survey about the practices of 200 individuals who considered themselves postsecondary practitioners of distance education. In 2003 the American Distance Education Consortium (ADEC) produced *Guiding Principles for Distance Teaching and Learning* to serve as a set of guidelines for evaluating online courses. Likewise, for the K-12 online audience, the National Education Association (NEA) and South Regional Educational Board (SREB) published similar guidelines in 2006 for addressing effective practice in virtual school courses.

These documents address the practices of both postsecondary online and K-12 virtual school teachers, and are consistent in the recommendations they make related to classroom

management and pedagogic strategies. To illustrate these consistencies, the recommendations made in relation to the areas of classroom management and pedagogic strategies are now briefly reviewed. In relation to classroom management, the guidelines address the instructional design of the online course as well as the necessity of providing students with information for getting technology-based support. In addition, the classroom management guidelines contained in each document indicate the need for postsecondary online and K-12 virtual school teachers to outline materials and notify students of changes.

In relation to pedagogic practice, consistencies exist among the guidelines presented in each document regarding the formation of community and the engaging of students in course content. Likewise, all four of the documents establish the formation of community and the encouragement of student participation as two important considerations that should be made by both postsecondary online and virtual school teachers. A final consistency between the guidelines addressing pedagogic practice is the importance for online teachers in both settings to make considerations for the differing strategies required to engage students with the course content in comparison to those used in face-to-face settings.

Identifying the consistencies provides a basis for understanding the common considerations that should be made when teaching in an online environment, regardless of postsecondary or K-12 nature of the instructional context. In addition to the consistencies, there are recommendations included in the NEA and SREB publications that introduce unique considerations K-12 virtual school teachers must make based on the context of the education setting. The consistencies between the NEA and SREB publications that specify practices for teaching in the virtual school setting, begins to address the unique requirements for teaching in the virtual school setting. These two documents demonstrate consistency in regard to the

inclusion of guidelines that address classroom management, pedagogy, and communication.

Upon review of the consistencies among the classroom management recommendations that are made, there is a clear emphasis not only on instructional design, but also on establishing boundaries for the course.

Instructional design is addressed through the recommendations made for virtual school teachers to facilitate students' use of time management skills. In order to establish boundaries, guidelines are included that address the need for virtual school teachers to model appropriate online discussion and implement academic honesty policies. Also pointed out in the guidelines is the fact that it is equally important to use communication strategies in relation to the students and associated stakeholders in the virtual school setting (Davis & Niederhauser, 2007). Providing students with quick responses and meaningful feedback is one such recommendation for maintaining continual communication with students concerning their progress and status in a course. This information should also be provided to other stakeholders involved in the virtual learning process, such as the students' mentors or the district offices associated with the students' face-to-face schools.

The above provides a concise review of best practice documents in order to (a) identify the similarities between the postsecondary and virtual school online context and (b) draw out those unique elements associated with virtual schooling.

Implications of Literature

In this chapter, a review of literature was introduced that established a basis for understanding that the practices of K-12 virtual school teachers as an area in need of research. In order to achieve this goal, this chapter began by addressing the consistencies that emerged based on a comparison of the existing literature directing the use of pedagogic, communication, and instructional design strategies in face-to-face and postsecondary online settings. Next, the unique

strategies of postsecondary online teachers was discussed to indicate the practical considerations required for teaching online. Following, was a section addressing research that focused on exploring the perspectives of teachers in both face-to-face and postsecondary settings as a valuable means for establishing an understanding of their practices. Finally, a brief overview of virtual schooling was presented. In this overview, the best-practice publications from two postsecondary organizations and two secondary education organizations were introduced. A comparison of their content was then presented in order to extract (a) the points of similarity that represented their applicability in both the postsecondary and secondary online settings and (b) the points specifically relevant for the K-12 virtual school instructional context.

Clearly missing in the review of existing research presented is a body of work that focuses on the instructional practices of K-12 virtual school teachers. What is also evident is how concepts introduced from research in face-to-face settings have informed the research studies associated with the exploration of postsecondary online teaching. This practice has provided a basis for understanding how the unique context of online teaching requires the adaptation or modification of traditional practices used in face-to-face contexts. This process is now replicated in order to understand in order to address the gap in K-12 virtual school research. Many questions arise from taking this approach to research the instructional practices of virtual school teachers it in terms of how the unique context of the virtual school course transforms the practices used by teachers. The outcomes of this study will begin to answer these questions, and in doing so, contribute to the developing body of research focusing on the instructional practices of K-12 virtual school teaching.

Table 2-1. Adaptations of practice

Chickering and Gamson's original principles (1987)	Principle adapted by Graham et al., (2001)
Good practice encourages student-faculty contact.	Instructors should provide clear guidelines for interaction with students.
Good practice encourages cooperation among students.	Well-designed discussion assignments facilitate meaningful cooperation among students.
Good practice encourages active learning.	Students should present course projects.
Good practice gives prompt feedback.	Instructors need to provide two types of feedback: information feedback and acknowledgment feedback
Good practice emphasizes time on task.	Online courses need deadlines.
Good practice communicates high expectations.	Challenging tasks, sample cases, and praise for quality work communicate high expectations.
Good practice respects diverse talents and ways of learning.	Allowing students to choose project topics incorporates diverse views into online courses.

Table 2-2. K-12 Virtual school administrative/program models

State-led online programs	State-led online initiatives	Full-time online programs	District programs
<p>State-led programs:</p> <ul style="list-style-type: none"> Typically supplemental, students taking courses from a state-led program are also enrolled in a face-to-face school. <p>State led programs are:</p> <ul style="list-style-type: none"> Created by legislation or by a state-level agency and/or Administered by a state education agency and/or Directly funded by a state appropriation or grant for the purpose of providing online learning opportunities across the state. 	<p>Online initiatives:</p> <ul style="list-style-type: none"> Offer online tools and resources for schools across the state Are not involved with developing and offering their own courses that are taught by teachers that they have hired. 	<p>Full-time programs or cyberschools:</p> <ul style="list-style-type: none"> Enroll students on a full-time basis Directly issue credit earned by students upon completion of a course. 	<p>Two types of district programs:</p> <p>Single district programs:</p> <ul style="list-style-type: none"> Serve students who reside within the district that is providing the online courses. <p>Multidistrict programs:</p> <ul style="list-style-type: none"> Serve students from multiple districts May be state-led, run by a consortium, or operated by one district offering an online program to students from other districts.

CHAPTER 3 RESEARCH METHOD

The purpose of this study is to understand the pedagogical practices associated with K-12 virtual school teaching by investigating the perspectives of successful virtual school teachers through the use of in-depth interviews. The investigation was approached from a constructivist standpoint in order to produce a description—derived from the participants’ interview data—of the instructional practices associated with successful virtual school teachers. This chapter describes the study’s theoretical framework and the research design, which includes the sampling procedure and description of the participants. An explanation of the data collection and analysis methods used, as well as the justification for their selection, follows. This includes consideration of the appropriateness of these methods for answering the following research question: What are the pedagogical practices of successful virtual school teachers?

Theoretical Framework

The design of a qualitative study is theoretically driven, as the theory provides the framework for the processes of data collection and analysis used to explore a question (Crotty, 1998). In the case of this research study, a constructivist framework informed its design and guided the use of collection and analysis procedures to investigate the perspectives of participants in depth and detail (Patton, 1990). This involved the use of in-depth interviews and the recruitment of grounded theory techniques during the analysis of interview data to facilitate the construction of a theory that represents the pedagogical practices of successful virtual school teachers.

From the constructivist perspective, the formation of knowledge results from an individual’s interaction with the world and accumulation of experience. This makes is a relevant framework for studies seeking to interpret and describe specific phenomena (Crotty, 1998). In

contrast to objectivist viewpoints that perceive knowledge as absolute and existing outside of the individual, constructivist views of knowledge recognize it as an internal construction that is based on an individual's experiences (Miller & Dingwall, 1997). While objectivist perspectives serve studies that have prescriptive goals and seek to provide evidence for a predetermined set of assumptions, the inductive goals of constructivism are interpretive and recognize the roles of both the participant and the researcher (Guba & Lincoln, 1982). The acknowledgement of multiple perspectives and realities associated with constructivism holds value for research attempting to understand a phenomenon as it exists within a specific context. Guided by the constructivist framework, the methods used in this study focus on the individual as the unit of analysis to facilitate the formation of a theoretical description for the practices of successful K-16 virtual school teachers.

Constructivist views of constructing knowledge and meaning influence researchers' roles and direct their interactions with the data (Guba & Lincoln, 1994a). As such, drawing from the techniques associated with grounded theory, the individual data sets were interpreted and synthesized to form a theory about the pedagogical practices of successful virtual school teachers. The acknowledgement of multiple perspectives and realities makes constructivism a paradigm that lends itself to the idea of integrating various methods within a single study (Golafshani, 2003; Charmaz, 2006), which can ultimately strengthen the study's validity by providing an opportunity for paradigmatic convergence and the ultimate representation of varying perspectives (Lincoln & Guba, 2000).

Study Design

Context and Background

The virtual school teachers who participated in this study are employed by the same virtual school in the Midwest portion of the United States. The virtual school (which from this point on

will be referred to as MDVS) was established through funding received by the state legislature in July 2000 and operates under a private, not-for-profit state corporation to work in cooperation with individual school districts to grant course credit and diplomas. MDVS holds accreditations from the Commission on International Trans-Regional Accreditation (CITA) and the North Central Association Commission on Accreditation and School Improvement (NCA CASI). MDVS serves to provide state high school and middle school students with access to courses taught by certified teachers, as well as access to learning tools to which they would not otherwise have access. The commitment MDVS has to providing students access to quality courses and developing technology skills is reflected in their belief that children residing in the state should prepare for a globally competitive future that is integrated with technology and focused on the knowledge economy. It is then the mission of MDVS to give all face-to-face schools in the state an opportunity to offer students access to diverse courses, which provides the schools with a way to help students both build technology skills and utilize tools that will help them succeed.

MDVS currently offers 17 Advanced Placement (AP) courses and 45 core-content courses in the areas of English, science, math, and social studies. MDVS also offers noncore elective courses in areas such as world languages, visual and performing arts, and technology-based skills. These courses are offered in different paced schedules: flex (self-paced elective courses), self-paced, or semester paced (core AP and general education courses). MDVS employs approximately 100 part-time teachers to teach the students enrolled in the 107 courses the school offers. Since instructional quality is a focus of MDVS administration, the administration developed an Online Instructor Training (OIT) program in which new teachers are required to enroll and complete. The OIT program consists of one face-to-face meeting and 6 weeks of

online learning. This introductory course covers topics such as effective communication, utilizing the course environment, and basic pedagogical practices.

Participants

Participants for this study were selected using a purposeful sampling strategy (Rossman & Rallis, 2003) designed to identify successful virtual school teachers. A goal of utilizing this sampling method was to select participants that represented the variance of the instructional practices used by successful K-12 virtual school teachers based on the grade level and content taught. Purposeful sampling to achieve variation based on the content area and instructional level of the courses participants taught facilitated the formation of categories and concepts that represent thematic consistencies in grounded theory (Strauss & Corbin, 1998). In this study, prior teaching experience and certification status served as the primary criteria used for sampling participants to identify successful K-12 virtual school teachers. Experience was defined by 3 years of virtual school teaching and was closely tied to certification status, the second criteria. The time period of 3 years was selected based on the requirements outlined by Title XI of the No Child Left Behind (NCLB) act for “highly qualified instructors” (Bush, 2001) and the requirements for receiving the Master Teacher Certificate in the state that MDVS serves. The requirements for being a highly qualified teacher are:

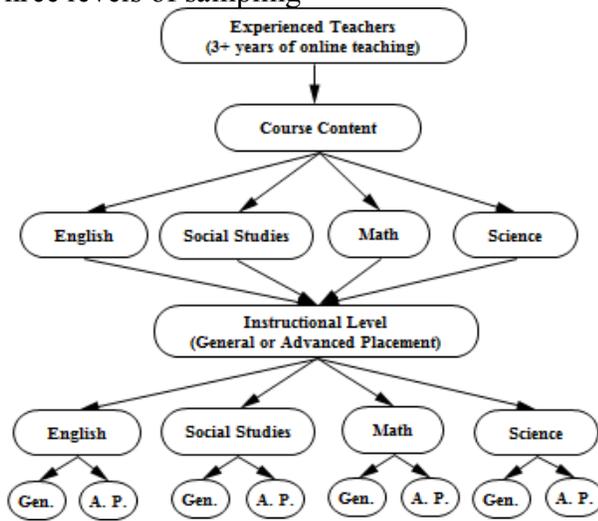
- A Bachelor’s degree or better in the subject taught
- Full state teacher certification
- Demonstrated knowledge in the subjects taught.

Obtaining the Master Teacher Certificate in the state that MDVS serves requires applicants to have 3 years of in-service face-to-face teaching experience within the state. The in-service teaching requirement for obtaining the state-based Master Teacher Certificate is consistent with regional certification laws. Guidelines stipulating the issuance of the Master Teacher Certificate

require teachers to maintain a temporary certificate during their first 3 to 5 years of their career, after which time they can apply for professional certification status.

In addition to experience and certification, participants were sampled across disciplines to include teachers of various content areas, specifically math, science, social studies, and English. It was possible that within these disciplines, the conceptions of successful instructional practice could change based on the grade level of the student audience and whether the course was general or AP. Establishing course instructional level as the third level of sampling provided an opportunity to understand potential variations in instructional practices associated with a specific content area based on the audience. A current critique of virtual school research is the lack of variance addressed by existing studies (Cavanaugh et al.). Sampling participants based on content area and target audience of the course can support the exploration of the variation of virtual school teaching experiences and, in so doing, respond to this criticism. Ideally, sampling participants on the three levels of criteria (Figure 3.1) will support the identification of differences in the conceptions successful K-12 virtual school teachers have for instructional practices based on the context of the course taught.

Figure 3.1. Three levels of sampling



The MDVS director of quality services facilitated participant recruitment by issuing a request for four volunteers from each content area (Table 3.1)—two that taught general-level courses and two that taught AP courses—to participate in the study. In grounded theory, achieving data saturation results from engaging the recursive process of data collection and analysis until new categories cease to emerge. Recruiting this number of participants from different content areas supported the achievement of data saturation and provided a point of validation for the study.

Table 3.1. Sampling matrix

	General level	Advanced placement level
Experienced K-12 virtual school teachers	English	English
	Science	Science
	Math	Math
	Social studies	Social studies

The sampling procedure outlined in this chapter provided a basis for selecting 16 MDVS virtual school teachers to participate in this study. The resulting number of individuals who participated satisfied all of the sampling categories outlined by the matrix except one: Only one AP English teacher was recruited; thus, in order to compensate, an additional AP teacher from science was asked to participate in the study. The implications this has on the validity of the study will be addressed in chapter 5. Ultimately, the number of participants supported the researcher’s ability to explore in depth the perceptions of successful K-12 virtual school teachers for their instructional practice.

Data Collection

Participants were asked to take part in two conversations the researcher during the course of the study: the first was part of the informed consent procedure, and the second was the interview session. Communication was not limited to these interactions and continued through

the exchange of e-mails. The informed consent procedure provided an opportunity for the researcher to describe the study and answer any questions participants had relating to it. The informed consent procedure also served to establish trust with participants as both parties were not in the same location during the interview (McAuliffe, 2003). Since there was considerable distance separating the researcher and participant, the two communications were conducted and recorded using an online telecommunication tool called Adobe® Connect™. The inherent nature of virtual schools implies a distance between instructor and student, and the utilization of a telecommunication tool such as Adobe Connect serves as a bridge between them. Adobe Connect supports the use of streaming audio and video and a shared workspace. For the purposes of this study, the interviews utilized the streaming audio feature of the software, the built-in audio recording tool, and at times the shared workspace.

A concern of using these tools as a means of data collection was the need for considering the technical abilities of the participants in order to ensure that the technology did not interfere with the interaction (Bampton & Cowton, 2002). However, this was not an issue because the virtual school teachers participating in this study regularly used telecommunication tools similar to Adobe Connect to communicate with their students. It was also important to consider the impact of using telecommunication tools on the researcher-participant relationship. By conducting the interview online and using Adobe Connect, the researcher was not able to use visual cues which can reveal participants' comfort with the situation and support the development of rapport (Bryman, 2001).

Because developing rapport and trust with participants was critical for ensuring the validity and reliability of the data collected, it was important to implement other methods to compensate for the lack of visual cues (Minichiello, Aroni, Timewell, & Alexander, 1990). During the

informed consent procedure, participants were provided with an outline of what to expect and some guidelines for interaction which were used to establish a basis of trust (Bampton & Cowton, 2002). In addition to providing participants with the outline during the informed consent procedure, the researcher communicated the intent of the study and gave each participant a chance to ask questions about both the research and the researcher. In absence of face-to-face introductions, an additional goal of the informed consent session was to give the researcher and participants a chance to develop a level of rapport with each other. The goal of establishing rapport during the informed consent procedure is to make participants feel open enough to not only ask questions, but also express concerns or reservations they had about participating in the study. At this time, the participants were also asked to respond to the consent form that was e-mailed to them by verbally affirming or declining participation in the study. This procedure was recorded through Adobe Connect, and only the recordings of those participants that gave affirmative consent were kept. In preparation for the interview session, participants received an e-mail which reiterated the interview's focus and included the 7 semistructured interview questions. Participants were asked to prepare for the interview by reviewing the questions and thinking about them in relation to the course they were currently teaching as well as other virtual school courses they had taught in the past.

Interview sessions were scheduled no later than a week after the informed consent procedure and lasted a maximum of 50 minutes, in consideration of the participants' time. Providing participants with the questions that would be the focus of the interview session was a way of laying the guidelines for the "interaction" that would take place, ensuring both parties knew what to expect upfront. The seven questions developed for the 50-minute interview were semistructured and provided a general framework to guide the conversation. Using a

semistructured interview protocol provided participants with an opportunity to address aspects of successful virtual school teaching based on their own experiences. The questions were designed to prompt participants' description of their pedagogical practices in relation to the general strategies they used, their specific use in relation to the content area they taught, and the use of technology. The interview questions covered three topics that provided an opportunity to analyze the data collected based on several points of comparison. The questions were as follows:

- What are the pedagogical practices you use to teach *insert content area (math, science, etc.)* virtual school courses?
- Why are you using these practices?
- Drawing from your experience teaching different courses within your content area, do the pedagogical practices you use change based on the virtual school courses and the focus on the content included within it (biology, chemistry, etc.)?
- If so, how do these practices differ, and why do you use different ones?
- How do you use different technologies (such as discussion boards, chat tools, wikis, etc.) within the virtual school courses to support your pedagogical practice?
- How do you use technologies not built in to your online course environment (such as Web-based tools and resources) to support your pedagogical practices?
- What are your values/beliefs regarding virtual school teaching and the pedagogical practices you implement?

These questions served to focus the topics discussed during the interview session. Probing and follow-up questions were used in response to participants' reactions when appropriate. The goal of using probing and follow-up questions was to gain more details regarding participants' responses and, hence, a greater depth of understanding for their replies.

Data Analysis

Glaser and Strauss (1967) introduced grounded theory analysis as a methodology that would provide researchers with a means for systematically analyzing data to define its content. This goal aligned grounded theory with an objectivist perspective, implying that the detached

nature of the researcher would prevent his or her prior knowledge and experiences from intruding upon the analytic process. The theoretically driven use of the methods associated with grounded theory can be valuable for studies with the goal of forming an understanding of the processes associated with a specific phenomenon (Charmaz 2006; Grekhamer & Koro-Ljungberg, 2005). The evident shift in the constructivist application of grounded theory methods is the acknowledgement of the theoretical description formed as a construction of the researcher. As such, the constructivist application of grounded theory methods provides a strategy opposed to a strict protocol for approaching analysis that acknowledges the subjectivity of the researcher as the lens through which data is interpreted.

Constructivist grounded theory represents a reality that emerges from the story told by the data, through close analysis and constant comparisons. Thus, the resulting theory is grounded in the data and provides an opportunity to form a greater understanding of the experience communicated through the story (Strauss & Corbin, 1998). This point indicates the relevance constructivist grounded theory has for this study, because little is known about the pedagogic practices of successful virtual school teachers. Focusing on the interview data collected from the 16 virtual school teachers who participated in this study enables me to form an analytic explanation, or description, for the pedagogic practices of virtual school teachers. This strategy ultimately led to the final stage of analysis and the formation of a theoretical statement to represent the consistent themes and categories derived from participants' descriptions regarding the pedagogical practices of virtual school teachers (Charmaz, 2006; Corbin & Strauss, 1990).

Three strategies associated with grounded theory were used in this study, including the coding of data, the constant comparison between data sets, and data syntheses. These analytic techniques were applied during a synchronous and recursive process of data collection and

analysis. The goal of coding the data was to identify those concepts that were repeatedly present in the data and that ultimately led to the synthesis and formation of the theory. The strategy of coding associated with constructivist grounded theory was implemented and involved the sequential identification of initial, focused, and selective codes to identify a core category (Charmaz, 2006).

The constructivist use of initial, focused, and selective codes differs from Corbin and Strauss's use of open, axial, and selective coding. Corbin and Strauss associate a close analysis of data during the process of open coding with the forming of categories that represent the core ideas or statements in the data. Initial coding is demonstrative of the constructivist perspective and recognizes the subjective stance of the researcher. During initial coding, each line is labeled with words or phrases that interpret their meaning. The fact that this process of labeling is deemed an interpretation acknowledges the role of the researcher's prior experiences and knowledge on how he or she looks at data.

Focused and axial coding marks the beginning of category formation, which establishes the links among categories through the formation of subcategories that represent the differences in their properties. The process of axial coding directly leads to the process of selective coding where a core category, which serves as the foundation of theory, is identified. During the final stage of coding, the relationship among categories is articulated through the use of selective codes. While Corbin and Strauss's process of selective coding focuses on the identification of a core category in order to form an objective description of the data, the process of selective coding from a constructivist perspective focuses on the relationships among categories. The focus on the relationships among categories results in a theory that represents and forms an

understanding of the data and is representative of the subjective standpoint associated with the constructivist perspective.

The grounded theory process used in this study began with the initial coding of data in the margins of each interview as it was transcribed. Codes were attached to the smallest section of text that related to the topic under study, ranging in size from a few words to a few sentences. Some of the open codes from the data included “maintaining the environment,” “modeling communication,” and “communicate to motivate.” A complete list of codes associated with this study is included in Appendix A. When all data were collected and coded, the codes were compiled into a list and refined so the list was not repetitive and no overlap existed among the initial codes. During the process of initially coding the data, notes (or memos) were recorded to document questions and potential themes to explore during subsequent interviews and in the later stages of analysis.

The process of focused coding involved the organization of initial codes into categories that exemplified the relationships among them for the purpose of grouping the associated motivations or justifications included in participants’ descriptions. The focused codes encompass the pedagogic practices that the virtual school teachers used in their courses to satisfy the instructional objectives they have set for themselves. Examples of the focused codes are the following: “meet students’ needs,” “manage the course,” and “preventing misinterpretations.” The selective coding of data involved the identification of core concepts both within and across data sets to synthesize further the code categories. These selective codes incorporated the properties and goals of the pedagogic practices of the virtual school teachers interviewed for this study. The properties defining selective codes included “supporting student success,” “fluid practice,” “academic integrity,” “connecting with students,” and “engaging students.” All coded

data for the virtual school teachers were categorized within these main concepts. Although it was not the original intent of the approach taken to analysis, cultivating knowledge emerged as a core category that represented a unifying attribute of the selective codes.

Using memos to record ideas and questions at the onset of data collection is a critical method of grounded theory (Corbin & Strauss, 1990). The memos provide a means for analyzing data and codes during the research process and serve as a record of the decisions made upon the completion of the research process (Charmaz, 2006). During the data collection phase of this study, memos were used to record salient details while coding initial interviews, which served to guide the probing questions used during subsequent interviews conducted. The recursive process of data collection and analysis implies the use of previously coded interviews that serve as a basis of comparison for subsequent data collected. Memos facilitated the recursive nature of data collection and analysis by providing a means for recording questions and impressions that emerged during the stages of initial and focused coding to support the identification of new themes and categories.

The use of memos during the beginning stages of this study also facilitated the constant comparison of the interview data and served to document the consistent themes, evidenced in participants' statements, which provided a basis for the formation of categories. When all interview data had been collected, the questions, impressions, themes, and potential categories documented by the memos were used to further the progression of analysis. A sample list of the memos recorded during analysis is included in Appendix B. As the data were arranged and rearranged to facilitate the identification of selective codes, memos were used to document both the directions the resulting theory could take and the initial theoretical descriptions of the data.

Theoretical sampling is a method for used by researchers to direct future decisions regarding what data to collect next so as to support a developing theory as it emerges (Glaser & Strauss, 1967). The goal of theoretical sampling is to uncover diversity by exploring the full spectrum of possibilities that are relevant to working theories and provide the researcher with an opportunity to explore underdeveloped but relevant concepts in the data (Corbin and Strauss, 1990). By using theoretically relevant details revealed during the analysis of data collected to guide the focus of subsequent interviews or observations conducted, the researcher achieves data saturation. In this study, theoretical sampling was not implemented as part of the analytic process to achieve data saturation. Data saturation was achieved through the constant comparison of data to identify the consistencies evident in all data sets.

Trustworthiness

In qualitative research, reliability and validity are satisfied through the meaningful and authentic representation of a reality explored through inquiry. The essence of quality criteria for establishing the validity and reliability of a study is based on establishing the trustworthiness of the claims made by the researcher. Several concepts are related to establishing the trustworthiness of a study's outcomes; the concepts of credibility, transferability, dependability, and confirmability equate to the demonstration of a qualitative study's reliability and validity (Lincoln & Guba, 1985).

The concept of credibility is associated with techniques for establishing the internal validity of a study, which are utilized to demonstrate the believability of a study's outcomes. Internal validity is concerned with how congruent the research findings are with reality, referring to the plausibility of the data and interpretations (Glesne, 1999). Creswell (1998) identifies the following eight methods that qualitative researchers can use to establish credibility: prolonged engagement, triangulation, peer review, negative case analysis, acknowledging researcher bias,

member checking, thick descriptions, and external audits. Three techniques were used in this study to establish credibility: member checks, clarification of researcher bias, and data triangulation.

The first technique listed, member checking, is a technique used to establish the credibility of the research findings by providing participants an opportunity to confirm or disconfirm the researcher's transcription of the interview and/or the outcomes of the analysis. To verify the data collected in this study, member checks were conducted to allow the participants to immediately correct errors in facts, volunteer additional information, and summarize and confirm individual data points. The member checks were conducted by e-mailing participants the transcriptions from their interviews and the interpretations made from the transcriptions. E-mailing this information to the participants gave them the opportunity to review and provide corrective feedback, if necessary (Constas, 1992). Each participant replied to the e-mail sent to him or her and affirmed that the transcript was an accurate representation of the statements and comments he or she made during the interview. The member checks, utilized in this way, also provided a way to account for researcher bias by confirming or disconfirming the developing theory.

The second technique listed is the clarification of researcher bias. Clarification of bias can be accomplished through a subjectivity statement that provides information to aid the reader in making determinations about the researcher's interpretation of the data, as well as the integrity of the interpretation. In this study, the subjectivity statement served to clarify the researcher's bias and provided insight into any general experiences with the field of virtual schooling that could result in potential biases and influence the interpretation of the data. Identifying my existing perceptions and biases allowed me to acknowledge them and put them aside so that I might understand the phenomenon under study without imposing prior biases (Creswell, 1998).

The third technique listed to establish credibility is triangulation, which can be achieved using various sources such as theories, methods, data sources, or other researchers to confirm data interpretations (Denzin, 1978). Denzin (1970) distinguishes four forms of triangulation:

- Data triangulation: the use of several sampling strategies during data collection to represent data at different times and social situations and from different perspectives
- Investigator triangulation: the use of more than one researcher in the field to gather and interpret data
- Theoretical triangulation: the use of more than one theoretical position to interpret the data
- Methodological triangulation: the use of more than one method for gathering data.

For each of these methods of triangulation, the varying elements are compared for consistency and convergence to establish the credibility of a study's findings (Lincoln & Guba, 1985). While not applied in the traditional sense, triangulation was implemented in this study through the comparison of data collected from the 16 participants with existing research on the instructional practices of face-to-face and postsecondary online teachers. Using existing research as a source of triangulation serves to confirm those findings that demonstrate consistency with existing research, and support the identification of unique practices included in participant's descriptions of K-12 virtual school teaching. Furthermore, triangulating the outcomes of this study with research conducted in face-to-face and postsecondary online settings establishes the external validity of the study's findings.

Lincoln and Guba (1985) identify transferability as analogous to the concept of external validity in quantitative research. Although qualitative inquiry tends to seek an in-depth understanding of a specific experience, rather than the universal features that can be applied to most situations, generalizable patterns and perspectives can be yielded through thick descriptions, multiple cases, and comparisons across cases. Ultimately, the researcher must provide a description of the process that will enable those individuals without any involvement in the study to "reach a conclusion about whether transfer can be contemplated as a possibility,"

(Lincoln & Guba, 1985, p. 316). In order to facilitate the transferability of the research findings to other contexts, thick descriptions of the contexts, along with memos and notes documenting the researcher-participant interaction, were recorded. These descriptions, in addition to those provided for the 16 teachers who were intentionally sampled to represent diversity within the population, are included to indicate the potential usefulness of the study's findings for researchers, virtual school teachers, and virtual school administration.

Dependability, or consistency, is a qualitative concept that equates to reliability and objectivity in quantitative research. The notion of reliability assumes that repeated measures of a phenomenon producing the same results establish the truth of those results. Replicability is impossible in research where the findings are constructions of the researcher. Therefore, Lincoln and Guba (1985) replace the term reliability with dependability (or consistency). Dependability is achieved through the documentation of the procedures used and decisions made throughout the process of data collection and interpretation.

In this study, a record of data collection and analysis provided by an audit trail both supplied a basis for establishing the reliability of the study and increased its transferability. One of the techniques associated with grounded theory is the use of memos to demonstrate the recursive process of data collection and analysis and to document the process of how decisions are made that lead to the formation of a theory (Charmaz, 2006; Strauss & Corbin, 1998). The memos, in addition to the interview transcriptions and general notes taken throughout the process of analysis, resulted in an audit trail. Such documentation ensured the reliability of this research by providing evidence that the data collection and analysis process was methodologically rigorous and sound.

Limitations

There are a number of potential limitations to this study. These limitations exist in relation to the theoretical perspective, participant sampling, and the methods used to collect data and establish the validity of the study's outcomes.

Theoretical Framework

The constructivist framework guiding this study implies that the findings are a construction of the researcher's interpretation of participants' statements. This poses a limitation to the study by making the interpretation reliant both on the awareness participants had of their own beliefs and attitudes, as well as on the ability of the researcher to help participants explicitly express these beliefs and attitudes regarding their pedagogical practices. While techniques such as developing rapport with participants, clarifying researcher bias, and member checking were used to reduce the potential impact of this limitation, it still has the potential to influence the depth and richness of the collected data.

Participant Sampling

The procedure used to select and sample participants has four potential limitations. First, the selection criteria proposed for this study was ideal for developing a description that was representative of the diverse population of virtual school teachers. However, it is important to note that the issue of diversity and virtual school instructors is a current issue identified in virtual schooling research. This issue poses a similar challenge for recruiting participants that represent ethnic and gender diversity. Second, there were requirements of participation that might have influenced individuals' decisions to volunteer for the study. One such factor was the amount of time participants were asked to commit to meet with the researcher to participate in the informed consent procedure and interview. The third limitation of the sampling procedure is that, although drawing participants from a single school added to the study's internal validity, it consequently

limited the ability of the researcher to generalize the outcomes of the study to virtual school teachers outside of MDVS. Finally, the fourth limitation of the sampling strategy is the selection of participants based on a definition of success that was developed for this study. While this was done because there is no current definition for success that applies to K-12 virtual school teachers, it is important to acknowledge that this definition may be incorrect or lack certain aspects of successful virtual school teachers.

Data Collection Methods

This study implemented a process of data collection that involved the use of a mediating tool to conduct interviews with participants. While this was justified in terms of the geographic distance between the researcher and participant, it is important to acknowledge the use of the Adobe Connect environment to host the interview sessions as a potential limitation of this study. Qualitative researchers rely on the rapport developed with participants to facilitate conversation and the eliciting of elaborate descriptions from participants. When a researcher lacks the ability to use eye contact, gestures, and body language to gauge participants' comfort levels with questions, it is possible that connections developed with participants may be impacted.

Triangulation

Triangulation is used to establish the credibility of a study's findings by utilizing multiple methods, theories, data sources, or points of external confirmation to demonstrate consistencies in the data. The implementation of triangulation to establish credibility poses limitations to the validity and transferability of the study's findings. The first limitation is associated with use of existing literature to corroborate the outcomes of data analysis. The body of existing research on the practices of teachers in face-to-face and postsecondary online settings is used as a basis with which to compare the instructional practices described by participant's in this study. While this approach to triangulation ultimately led to the identification of instructional practices unique to

the K-12 virtual course setting, the outcomes of the process did not address the internal validity, or credibility of the study's findings. The second limitation relates to the population of virtual school teachers sampled. The sampling strategy used in this study was designed to represent the diversity of K-12 virtual school teachers at a single virtual school. Because the findings of the study are based on data collected from one virtual school, the transferability of the outcomes to other virtual school settings are limited.

MDVS, the virtual school that agreed to be involved in this research, supported the study by giving the researcher access to the virtual school teachers that were currently teaching MDVS courses. Unfortunately, access to participant's courses was not provided and inhibited the ability of the researcher to use different types of data collection strategies, such as observations.

However, had multiple sources of data, and data sets from multiple virtual school been collected, triangulation could have been used to both increase the validity and transferability of the study's findings.

Researcher Subjectivity

In qualitative research, the researcher is both the tool for data collection and the interpreter of data. As such, the biases the researcher has must always be considered, and the role prior knowledge and experience might play in the interpretation of data must also be taken into account. Therefore, as the sole researcher responsible for collecting and interpreting the data, I gave careful thought to past experiences that could potentially bias this role. One particular bias that presented itself in this study was my prior experiences as a teacher. My experiences as a teacher range from aftercare supervisor for a Montessori school to a media specialist for an elementary school. I have fond memories of my time in the classroom and value the majority of interactions I had with students. The opportunity to facilitate the process of learning and play a

part in students' achieving their "a-ha!" moment with a topic was the most rewarding part of my job.

It is also important to acknowledge bias associated with my current role as a doctoral candidate and a learner in a department of educational technology, which reflects my interest in and passion for the use of technologies in varying capacities. Resigning from my position as a media specialist and returning to school for my PhD was a difficult choice, but I felt that, in my role as a teacher, I had limited capabilities for enacting change. The desire to "make a difference" has been an underlying motivation throughout my doctoral career. Through my current position as a research assistant to my advisor and chair, I was introduced to virtual schooling and provided with an opportunity to work with virtual schools across the country. The experience has not only extended my knowledge regarding the potential value these settings have for providing educational opportunities, but also opened my eyes to both the positive and negative examples of organizational structures, instructional design, and pedagogical practices.

The coding process associated with constructivist grounded theory provides a means for addressing the potential influence of a researcher's prior experiences during the research process. The initial coding process outlined by Charmaz (2006) provides a means for a researcher to withhold from imposing his or her own beliefs by utilizing sensitizing concepts to code data. Sensitizing concepts require a researcher to conduct initial coding using codes that use many of the participants' own words, which are then rephrased into action statements. Engaging in this process helps to ensure that participants' realities, not the researcher's, are represented.

Conclusion

A constructivist grounded theory approach provided a means for establishing a foundation of knowledge regarding the pedagogical practices associated with successful K-12 virtual school teachers. This chapter outlines the procedure used to achieve this goal and includes a description

of the context; background and participants; method of data collection, including sampling criteria and interview questions; method of analysis; and means for establishing trustworthiness. At the conclusion of this process, a theory was formed that is representative of the virtual school teachers' statements regarding their pedagogical practices.

CHAPTER 4 DATA ANALYSIS

The purpose of this study is to form an understanding of the pedagogic practices of virtual school teachers. This understanding was developed by exploring teachers' perspectives about the use of general, content-based, and technology-based practices in their virtual school courses. The interview protocol used to guide the conversations the researcher had with participants provided a means for understanding the practices of virtual school teachers in relation to the general strategies they used, their content-specific practices, and their use of technology. The beliefs participants held about the practices they used in the virtual school setting were also explored. The responses of participants were documented during the 50-minute interviews that were conducted with each individual. The interviews were then analyzed using methods associated with grounded theory to facilitate the identification of consistencies and patterns in participants' data sets. The sampling strategy used in this study also supported the exploration of discontinuities among the perspectives of teachers teaching different content areas. This process resulted in a description of the pedagogic practices of virtual school teachers as well as justifications for their use of these practices. In this chapter, I outline the outcome of this analytical work and begin to map out how it helps to form an understanding of the practices of virtual teachers.

In defining the relationship between each level of coding during analysis, what became evident is how the beliefs, goals, and practices of participants were represented by the three levels of coding. The core category of cultivating knowledge provides a context for describing and interpreting the initial, focused, and selective codes documented during analysis. Figure 4.1 depicts the beliefs and goals associated with virtual school teaching and how they relate to each other. Figure 4.2 depicts a single goal and the practices associated with it, to provide an example

for how the categories relate to each other. The coding trail in Appendix A includes the full list of the beliefs, goals and practices, and relationships among them.

Participants' pedagogic beliefs were represented by the selective codes resulting from this study and are presented here first in order to establish for the reader the underlying motivations driving the goals and practices that will be presented in the subsequent sections. In the context of this work, beliefs are defined as those contentions held by participants in regard to the practice of K-12 virtual school teaching. The pedagogic goals of participants are represented by the focused codes, and are later described and then discussed in regard to the relationships that exist among the pedagogic goals as well as to the beliefs presented in the previous section. Finally, the pedagogic practices represented by the initial codes are presented, described, and then discussed in terms of the specific goals they serve. Structuring the chapter in this way facilitates the presentation of a grounded theory to describe the relationship that emerged among the beliefs, goals, and practices of K-12 virtual school teachers.

Figure 4.1. Theoretical diagram

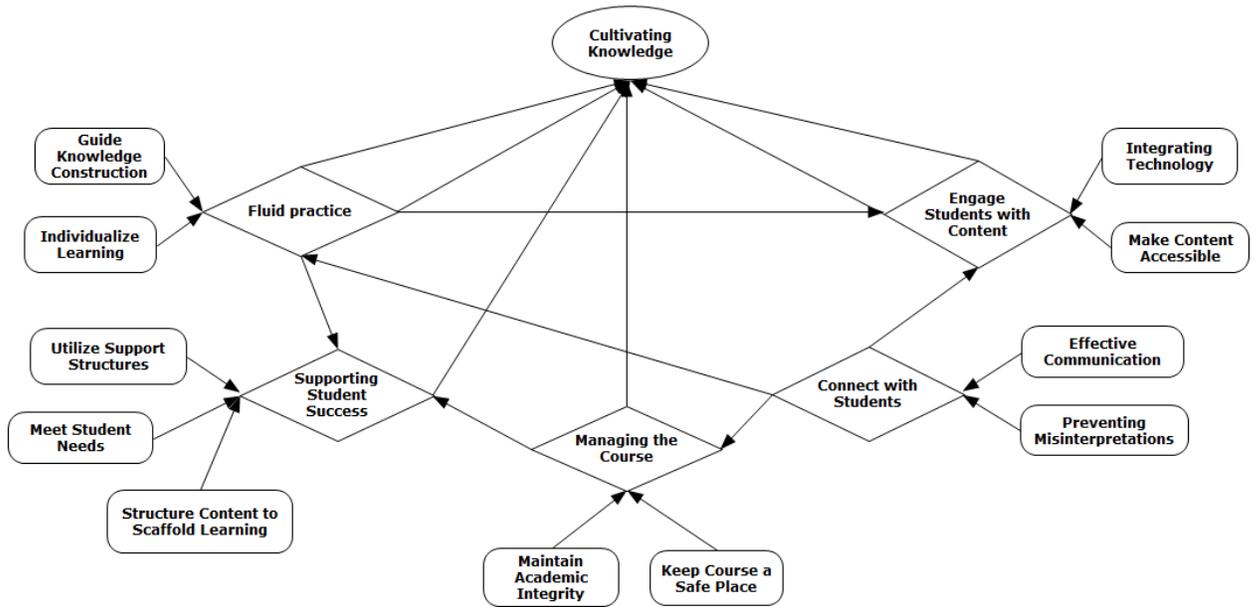
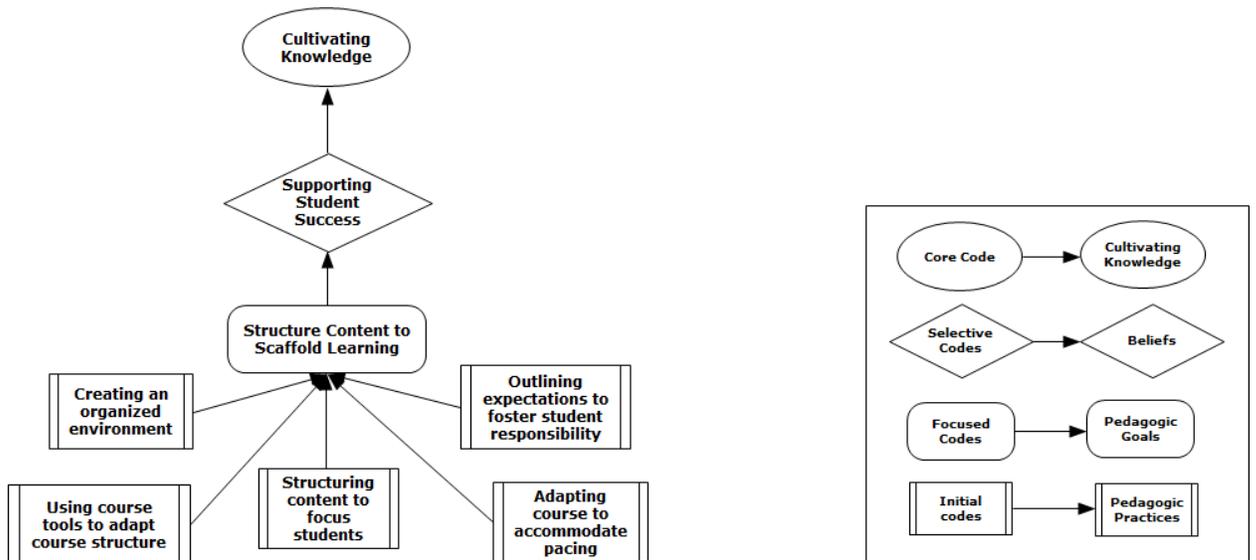


Figure 4.2. Relationship between focused and initial codes



Pedagogic Beliefs

The concept of virtual school teaching introduces a new context for teachers to implement practices in order to facilitate student learning. The commonalities between the process of teaching and learning in the online and offline settings imply the applicability of certain practices from one context to the other. However, there is a distinction that exists in the K-12 virtual school context that makes the direct application of practices from one environment to the other without any reinterpretation problematic. In the following section, the analysis indicating how these factors are reflected in the beliefs held by participants is presented.

Belief 1: Connecting With Students

The formation of connections with students is an example of a belief that underlies the practices participants used in both their face-to-face and virtual classrooms. However, participants did indicate distinctions in their beliefs that were associated with the virtual course context. These distinctions represent a change in participants' perceptions regarding the role of connections in cultivating student knowledge in the virtual course setting. The role of connections was transformed in the virtual school context resulting from the lack of visual and audio reinforcements, which provide the foundation of forming connections in a face-to-face setting. Additionally, the increased dependence on these connections to serve as a source of motivation for students also served to distinguish the role of connections in the virtual setting from the role of connections in the face-to-face setting.

The experience of taking an online course can be an isolating one for students. While some students thrive in these environments, others find it an alienating experience that can have a negative impact on their learning (Johnson, 2005). This serves as a primary motivation for the transition in participants' beliefs about connecting with students that are specific to the virtual course context. Participants believed that reinforcing gestures, facial expressions, and intonations

in voice is a critical means by which to connect with students and minimize or prevent students' feelings of isolation. The participants noted that by emphasizing their presence and willingness to support students, connections formed with the students also serve to "let them know they're not out there by themselves and that they have somebody that they can rely on" (Nancy, 5.30.07), to help students "not feel alone" (Casey, 5.31.07), and to reinforce the students' perception that they "had a real teacher" (Rhonda, 6.12.07). In addition to combating students' perceptions of isolation, a second distinction of this belief is its motivational component.

While the connections formed with students are "essential for supporting their learning" (Bob, 6.5.07) in both face-to-face and virtual course settings, they are a primary point of motivation associated with online learning. Part of what makes the connection motivational stems from participants' beliefs that "students do not care how much you know until they know how much you care" (Kristi, 5.30.07).

As a teacher I think the number one job I need to do is to make connections with my students. Even though, I don't see them, have great conversations with them, and I think having that connection to my online students makes me a better teacher and makes it more fun for me, but I also say my students have more accountability, they know I am here, they are not just typing into the computer or to be sent out into the world wide web and maybe it'll come back. (Shannon, 6.14.07)

A last point related to the value of connecting with students in virtual settings is the fact that the teachers who participated in this study had little to no information regarding their students. The opportunity that connection offers for the formation of "an understanding for what the students' world is, both inside and outside of the school setting," (Rob, 6.11.07) also influenced the establishment of this belief with participants. As is discussed in the following sections, the knowledge gained about students through the connections formed with them serves as a primary point underlying the cultivation of knowledge in the virtual course setting.

Belief 2: Fluid Practice

While all participants acknowledged the similarities between teaching in a face-to-face classroom and teaching in a virtual course setting, they expressed the need to transition those beliefs in order to accommodate the unique teaching context. Fluid practice can be defined in terms of the general approach taken by a virtual school teacher that is reflective of the aspects of virtual courses which put a focus on the student versus the content. In order to accommodate this focus, participants described experiencing a shift in their beliefs regarding their instructional role, moving from perceptions of themselves as givers of knowledge to perceptions of themselves that focus more on their guidance of students' knowledge acquisition. Articulation of this transition is demonstrated by the following quote:

I would say that initially when I started [teaching online] that my beliefs were that here in the classroom, I am the teacher you are the student, so therefore you'll take direction from me. What I have learned over the years that [*sic*] is that our society is changing and the needs for education are changing, and that it's not a dictatorial environment. I provide information, and provide variations of that information throughout my courses in such a way that it meets almost all of the learning styles. (Molly, 6.15.07)

In terms of the context presented in the quote above, fluid practice can be thought of as a transition experienced by participants in order to better facilitate the translation of their prior practices to better suit the necessities of the virtual course setting. This transition was further defined by other participants who specified the focus of their guiding role, which emphasized a facilitation of students' understanding of the content. "Our role [as virtual school teachers] is to guide our students through this maze and develop an understanding of their subject area as well as the world around them" (Holly, 6.11.07).

Other distinctions of this role emerged that provided an additional means for understanding the role of fluid practice in the cultivation of student knowledge. The transition in role and increased focus on the student was also distinguished by participants' commitments to

cultivating knowledge by individualizing learning. Because the participants functioned within a preconstructed course setting, they described having more time and a greater capability for attending to the needs of each student. Attending to individual needs resulted in participants' careful and close review of students' work. Additionally, attention to individual needs allowed the participants to make an investment in maintaining an open flow of communication with students in order "to indicate students [*sic*] areas of weakness with the content" (Melanie, 6.4.07) and then "tailor support to the individual student" (Elisha, 5.24.07). One participant by the name of Casey talked about the transition of roles she experienced while teaching in the virtual environment and described it in relation to her belief in individualizing student learning. This transition, she said, required her to draw more from her "role as a content specialist" in order to connect students to the content by using the "the knowledge that I have to support students when they have questions or when they don't understand a difficult concept" (Casey, 5.31.07). What the belief of fluid practice indicates is that participants, as online teachers, saw the core purposes of their roles shifting from that of knowledge holders to that of knowledge facilitators.

While focusing on students can be considered reflecting a micro view of the virtual teaching context, participants also described the role of fluid practice in relation to the macro perspectives they held. Equally important to participants was the adaptation of strategies, assignments, or content in response to a general trend or pattern they might have observed in regard to an entire class. The use of adaptive practices that were responsive to students represents how participants provided the students with what they needed when they needed it. In the following quote, one of the participants indicates the use of fluid practice by the responsiveness of her practices based on her understanding of students and their abilities: "They [instructional practices] are very responsive to the students, I try to foresee issues and correct them before the

students feel frustration, reword or modify items I felt needed a little tweaking” (Nancy, 5.30.07). The clear relationship that the belief of fluid practice has with connecting with students is evident in the making of modifications to the course based on participants’ understanding of “what these kids are like and also knowing what they need” (Kathy, 6.14.07).

Belief 3: Engage Students With Content

In regard to the cultivation of knowledge, engaging students with content is of the utmost importance. The use of strategies associated with engaging students with content is driven by the belief that “all students can learn given the correct setting and use of the right strategies” (Chris, 5.30.07). Because of the participants’ extensive content knowledge and experience in teaching, they believed that the responsibility of engaging students with content is a teacher’s responsibility. Drawing from the strong command of the content they taught, as well as the connections they had formed with students, the participants described how they were able to best select those activities and assignments that they felt were appropriate for cultivating content knowledge. Although this may seem consistent with the expectation of the beliefs a teacher would hold in a face-to-face classroom, it is influenced by different environmental requirements.

In any virtual school course, there can be a range of students that straddle the spectrum of content ability and interest. Therefore, drawing both from the opportunities offered by the medium to focus on the students vs. the content and from the connections established with the students, participants believed that, in order to engage students with the content, the students had to become aware of the personal relevance the content had for them. Participants addressed the importance of being “keyed into their students’ learning styles and their interests” (Kristi, 5.30.07) to facilitate enactments of this belief. Likewise, this information directed the enhancements they made to the courses.

In addition to driving the selection of activities, participants' knowledge of content and students served as the basis for the integration of Web-based, or course-based, tools into the course. For example, math teachers discussed the drawing in of Web-based resources to extend students' learning and provide opportunities to connect the content to their lives. The identification and selection of these resources was supported by the extensive content knowledge of participants. One of the participants by the name of Rob talked about the selection of supportive materials to illustrate mathematical concepts to students, which he described as "putting the value of the content into the everyday setting" (Rob, 6.11.07). English teachers also pointed out that drawing from resources available through the environment was critical for enhancing students' experiences with this kind of content. These tools not only served to facilitate students' interaction with content, but as another participant, Julie, described, also "provided a way for me to interact with them about the content" (Julie, 5.28.07).

Belief 4: Managing the Course

The belief in managing the varying aspects of a virtual school course is partially reflected in the participants' commitment to engaging students with the content. Similarly, participants expressed justifications for both categories that focused on ensuring "the education their students receive [online] is equal to their brick and mortar counterparts" (Shannon, 6.14.07). However, the selective code of managing the course is distinguished as a belief by its differing focus within the context of the virtual course environment. The belief of managing the course is concerned with maintaining the integrity of the course by the prevention of cheating and keeping the course a safe place for students. Participants indicated how, by using practices associated with this belief, they both set students on a trajectory to engage with the content and ensured that the course environment was a safe place for students.

In addressing participants' beliefs about managing the course, it is important to state up front the close relationship this selective code has to their beliefs about forming connections with students. A primary goal guiding how participants approached instances where the integrity of the courses they taught were compromised demonstrated their commitments to the connections formed with students since the participants recognized the potential negative effects their disciplinary actions could have on their relationships with the students. As stated earlier, the connections formed with students served as a source of motivation for them as they progressed through the course. Preserving communication is important for reducing the negative effect of consequences on students' motivation. As stated by one of the participants by the name of Molly, maintaining communication with students, as well as "letting them know you're not going to hold it against them" is a critical component for maintaining connections with them when taking disciplinary action (Molly, 6.15.07).

Another way participants described maintaining the integrity of the course was by observing interactions between students that took place in the public venues of the course, such as the discussion board. Participants described that by observing interactions students had with each other, they took responsibility for maintaining the integrity of the course by keeping it a safe place for students. This is an important aspect of the participants' beliefs as it indicates their recognition of an additional source of motivation in the course—that of other students. Just as the formation of community can encourage students' motivation and engagement with a course, negative interactions with other students can have the opposite effect. Furthermore, this belief served to facilitate the participants' provisioning of equitable educational experiences, as it is closely tied to their perceptions regarding the necessity for providing students with a positive learning experience in the online environment. Kristi emphasized the importance of creating a

“positive learning experience” in order to facilitate the quality of students’ online experiences and believed the experiences should be nothing less than what they would have in a face-to-face classroom (Kristi, 5.30.07).

Belief 5: Supporting Student Success

The use of mediating technology to accommodate the distance between teacher and student influenced the beliefs virtual school teachers in this study formed about supporting student success. Relying on delayed e-mail communications, discussion board postings, and, in some cases, telephone conversations, participants described their beliefs about supporting student success in relation to three distinctions: satisfying students’ content needs, using support structures, and making content accessible.

The success participant’s had supporting students was heavily influenced by the established connections that served as a basis for how their course-related needs were met. Demonstrating their instructional responsibility for facilitating connections that would be the basis of the support provided, participants described their beliefs in making themselves accessible to students by establishing a presence in the courses they taught. By being active in the environments to establish their presence, participants conveyed to students the interest and commitment they had to the students’ learning, as well as to with the provision of more opportunities to meet the students’ needs.

While interaction between teacher and student was the primary means by which participants met students’ needs, they also acknowledged the importance of utilizing the various support structures to which students had access in order to support the students’ success. One such support structure in the MDVS model is the role of the mentor. Mentors are part of the support structure for virtual course students, and as such, these individuals are made available to every student at every face-to-face school where a student is enrolled in an MDVS virtual school

course. Virtual school teachers recognize the role these individuals play and the opportunities they offer by providing students with content-based support. The teachers also recognize that the mentors may not be experts in the content in which students are taking courses. This is why the participants addressed the need to communicate closely with these individuals in order to support students' success.

Participants also described the role of mentors in relation to their beliefs about supporting student success in terms of the value gained from communicating with them in order to gain knowledge that could further help them meet student's needs. In addition, the participants discussed the involvement of mentors in their course-management practices. For example, in discussing cheating, participants described mentors as critical components for effectively addressing this issue. In addition, mentors were discussed in relation to the importance participants placed on ensuring students' personal safety. Participants described how they drew on their connections with mentors (since the mentors functioned as the participants' only direct contact with students) to facilitate the coordination of interventional strategies for students in personal crisis.

Based on interpretations of participants' descriptions, an understanding for the independent nature of online learning served to establish the relationship between the use of these practices and accessibility. Participants acknowledged the fact that students might be logging on to courses with no immediate means for getting support. For Elisha, this was closely tied to the need for demonstrating responsive communication with students:

If a student has questions when they're viewing part of your lecture or going through some tools, they can't just raise their hand and ask for help... when they approach the teacher on the online environment to get those answers, you know, the teacher will have to e-mail back or call back or whatever. You have to be very responsive and quick natured so that the student is not stumbling and frustrated because, you know, for high schoolers and

middle schoolers the frustration, once that hits, then they kind of give up. (Elisha, 5.24.2007)

In order to compensate for this, it appears that participants provided students with a clear delineation for how they could navigate the content to prevent confusion or misinterpretation of what was being asked of them.

Interpreting the Beliefs of Virtual School Teachers

The role of the selective codes in the grounded theory of this study provides a foundational context for understanding the practices of virtual school teachers. Representing the underlying beliefs of participants, the selective codes serve to categorize these beliefs about virtual school teaching practices. Connecting with students, fluid practice, engaging students, managing the course, and supporting student success represent those beliefs participants hold for virtual school teaching. The role of the selective codes described above, which represents participant's beliefs, demonstrates an essential component of the practices described by participant's by establishing the trajectories and justifications for their selection. The five categories of beliefs demonstrate the roles of the participants' formed understandings for the nature of online learning and the independent modes of learning it supports.

The shift in participants' beliefs to focus on the individual student is consistent with literature from postsecondary online settings that addresses this transition as representative of the adaptations online teachers make to their beliefs in response to the unique context of the online course environment (Spector & De la Teja, 2001; Vandergrift, 2002). The focus on the individual student underlies the utilization of learner-centered strategies that integrates the interests of students into the process of learning in order to facilitate and support their education in the online environment (Richardson, Long, & Woodley, 2003). This process is enhanced by student-teacher communication (Anderson, 2004a; Liu et al., 2005) and encourages teachers to

build relationships with students to foster academic success (Coppola, 2002). McCombs and Whisler (1997) provide an example for how relationships with students foster their academic success, identifying the role of content knowledge as a critical factor influencing a teacher's ability to implement learner-centered strategies used to focus instruction on the interests and needs of the student.

The beliefs identified in this study demonstrate a relationship to those held for teaching in face-to-face settings but have distinctions that are specifically aligned with the practice of virtual school teaching. In consideration of existing literature identifying the importance of transitioning face-to-face practices to better suit the online setting in order to motivate students and prevent frustration (Lee, 2004; Kurtz, Beaudoin, & Sagee, 2004), it is not surprising to see these as consistent with the themes illustrated through the participants' beliefs. The necessity to transition practices is attributed in existing literature to the distanced nature of the medium and independent nature of online students (Swan, 2004). These claims, however, are based on research conducted in postsecondary online settings. While these aspects of the online environment are considerations of the virtual school teacher, the lack of knowledge regarding both the characteristics of high school students as online learners and the difference in the general context complicates the transference of these findings to the virtual high school setting. The interpretation of the selective codes as representing participants' beliefs provides insight on teachers' perspectives regarding their motivations and justifications for the instructional goals they set and practices they use with students in their courses.

One major influence represented by the participants' beliefs is the impact of the distanced nature of online learning on the connections formed with students. A common critique of classroom practices in postsecondary online settings is the detachment students feel from the

course instructor (Glenn, Jones, & Hoyt, 2003). As a result of the distance implied by the virtual course context, participants' beliefs indicate a greater emphasis placed on the formation of these connections, since these connections were identified as a critical element of the high school classroom in face-to-face settings. An indication of the importance participants placed on the connections formed with students is the clear relationship between this and other categories representing the selective codes in this study.

While the motivational component of the connections formed with students is a main factor in the emphasis placed on this belief, the knowledge gained about students is considered equally important. The valued role of student-teacher communication in postsecondary online settings for fostering academic success is indicated in current literature (Coppola, 2002; Anderson, 2004a; Liu et al.). One advantage postsecondary online instructors have over teachers of virtual courses is the knowledge they have about students preexisting content knowledge in certain cases, because of the requirements and prerequisites restricting enrollment into some courses. In the virtual course context, establishing a relationship with students is even more important because virtual school teachers begin a course knowing nothing more than the names of their students. How, then, are they expected to accommodate the potential diversity of the students both in background knowledge and learning styles?

The connections formed between virtual school teachers and students are critical points of information gathering since they facilitate an instructor's ability to engage students with the content as well as address students' affective needs. Using the connections formed with students as a foundation for their learning in a course implies the need for practices that suit an individualized learning environment. The belief in fluid practice is how participants facilitated individualized learning in their courses. Through the articulation of this belief and the description

provided for the change in focus in their online courses to individualizing learning, a transition in the roles of teachers in the virtual course environment is implied. The transition seems to be from a knowledge giver to a knowledge guide. Representing a relationship between connecting with students and fluid practice are the beliefs teachers hold about supporting student success and engaging students with content. These two categories are demonstrative of how teachers use the knowledge they gain from students.

Pedagogic Goals

In the following section, the pedagogic goals of the virtual school teachers who participated in this study are presented. These goals represent the second level of coding in the grounded theory process, and were derived from the focused codes associated with participants' interview data. The categories included in this section serve to define the pedagogic goals that direct the selection and integration of specific instructional practices, and are representative of participants' underlying beliefs. The codes serve as a mediating stage in the process of virtual school teaching and are discussed in relation to the beliefs described in the previous section to illustrate the connection between the participants' goals and beliefs, as well as the connections among the participants' goals.

Belief 1: Connect With Students

Goal 1: Effective communication

Representative of the participants' commitments to the importance of connecting with students, the pedagogic goal of using effective communication directs the selection of practices used to motivate students' interactions with and completion of the courses. The use of effective communication strategies serves the underlying belief of connecting with students by facilitating the integration of practices that influence the depth and quality of the relationships instructors form with students. Providing a context for the use of practices, the practices associated with

effective communication served to outline the essential qualities of participants' written and verbal practices. The qualities associated with effective communication are communicating emotion, being committed to student learning, and being responsive.

Participants discussed the importance of conveying an emotional tone in their communications as a critical component of students' motivations. Julie talked about how the relationships she formed with her students were the "best tools to work with" for encouraging their motivations in regard to the content (Julie, 5.28.07). Motivation was addressed further in relation to the responsiveness of the communication participants had with students. As a means to compensate for the delayed communications associated with asynchronous environments, effective communication was associated with an established time frame for replying to students' messages. In the following quote, Kristi directly addresses the importance of responsiveness in relation to motivation:

MDVS requires a 24-hour turnaround during the week, and I think that's crucial because in a classroom setting, you raise your hand, you ask the question, it's answered, you can move on and in virtual studying you don't have that luxury and the longer these things are not there I think, the more likely they are to just drop off. (Kristi, 5.30.07)

Goal 2: Preventing misinterpretations

The emphasis placed by participants on the role of connecting and communicating with students provides a basis for understanding how effective communication strategies are used to foster students' motivations in a course. What participants addressed as equally important are the use of practices to prevent miscommunications with students. In serving this goal, participants described how important self-monitoring their communications with students was because it helped to facilitate and maintain connections with students. The conscious monitoring of language and emotional tone reduced the potential for misinterpretations of meaning and/or emotion being conveyed in an e-mail or discussion board posting. Addressed in relation to

maintaining students' interest and engagement with a course, the focus on using practices to self-monitor the participants' communications with students reduced the potential for negatively impacting students' interest in a course and "turning them off" to it. In the following quote, a participant by the name of Shannon describes the justification of this goal in relation to student engagement:

I think you just have to be a little more careful online because your words are there in writing, so you can't just say, "Oh, I didn't mean it that way," and if you don't, when you are typing something, if they don't get the inflexion of your voice or if they can't tell if you are joking or not, so you have to be very clear about how you write your comments, so they don't take them in the wrong way. (Shannon, 6.14.07)

What can be derived from these statements and those made by other participants is that these practices minimize the potential negative impact misinterpretations can have on the quality of the relationship that is formed with a student. The use of such practices was also addressed by participants in a way that indicates the motivational element of the connections formed with students.

Belief 2: Fluid Practice

Goal 1: Guide knowledge construction

The goal of serving as a knowledge guide accommodates the asynchronous nature of the participants' virtual school courses. The participants acknowledged the need to adapt their practices to suit a context where their traditional practices of lecturing would not be able to be used. Because of the asynchronous nature of their courses, participants indicated how serving as a knowledge guide benefited students by making them more "independent thinkers that could look within themselves to sort out answers". One of the participants, Leigh, talked about how her goal of having students "walk out of class being able to make a decision" impacted the strategies she used:

That they [students] are able to make decisions about their life. That's more important to me than if they know the parts of a frog and that kind of thing. So, I want them to have this foundation of knowledge that they can ask questions about, that they can think about, make decisions and be able to do something with rather than just have this clump of facts in their head that there's nowhere to go with. (Leigh, 6.14.07)

By focusing on guiding students' construction of knowledge, participants described a reorientation of their practices in order to be more compatible with the student-centered focus of virtual course environments. Participants also discussed the importance of being open to change and the necessity of continually updating their courses in order to best facilitate students' construction of knowledge. As one participant put it, "There's so much changing with the technology, so much that changes with the material that you really need to be open to change ... and not be static with your material" (Elisha, 5.24.2007).

A goal that runs parallel to guiding students' construction of knowledge is one that provides a context for selecting strategies to support the individual student. In reframing the focus of their practices to individual students, participants described how the tailoring of content and resources to provide support is a primary focus of their instructional roles. As such, the use of such practices to facilitate this function defines the participants' goals of individualizing learning. This goal serves the context of the environment and facilitates the use of practices that accommodate its student-centered focus. Participants also selected practices to serve this goal in order to accommodate the diversity of students enrolled in a single virtual school course and facilitate their roles in guiding students' knowledge construction.

Belief 3: Engage Students With Content

Goal 1: Make content accessible

This goal represents participants' understanding for the importance of coordinating content knowledge, knowledge of students, and knowledge of the instructional context to guide the selection of practices implemented in a virtual school course. The goal of making content

accessible is to account for the diversity of students and variations in their preferences for learning. In regard to the lack of background knowledge about students, the participants pointed out that enhancing courses to accommodate varying learning styles is a way to increase the accessibility of the content to all students and provide them with the maximum opportunity to be engaged with the content in a personally meaningful way. In the following quote, the consideration of learning styles in relation to taking maximum advantage of the online environment is addressed: “To prevent student frustration I try to provide students with multiple opportunities to interact with content in multiple formats in order to meet the learning styles of all students enrolled in the course” (Elisha, 5.24.07)

Giving students hands-on experiences is important for fostering their interests in the content and their motivations to engage it. Acknowledging the role of varying learning styles, Holly, Casey, Rhonda, Leigh, and Kathy addressed the need to provide students with as many opportunities to excel as possible in order to meet the needs of all students. They also suggested that it was important for students to explore their own interests in a particular content area in order for them to see the value it had for their own lives. Leigh talked about the strategies she used as a means for empowering students with knowledge that would be valuable not only for assisting them in completing their courses, but also for aiding them in decision making throughout their entire lives.

Goal 2: Integrate technology

The second goal derived from the belief of engaging students with content is for the virtual school teacher to use practices that make content accessible to students by integrating technology. Integrating technology was discussed by participants in relation to the purpose it serves by providing the participants with varying ways to represent content to students. By selecting practices that serve the goal of integrating technology, content is also made more

accessible to students in that it provides them with different opportunities to apply and use their knowledge. Using the integration of technology in this way facilitates student learning by facilitating both the students' connection with the content and the formation of a concrete understanding of it.

Belief 4: Managing the Course

Goal 1: Academic integrity

Participants' descriptions for the practices used to manage their courses were categorized as a demonstration of a goal related to maintaining the courses' academic integrity. Maintaining the academic integrity of a course, as a goal, is representative of those practices participants used to monitor the work submitted by students, as well as the interactions taking place in the discussion boards and other public venues of the course.

The relationships formed with students served as a source of motivation as they progressed through the courses, participants relayed. What emerged as a core purpose of managing their courses to ensure academic integrity was the use of practices to address cheating in a way that minimized the potential negative effect on students' motivations. This is indicated in participants' statements that described the importance of maintaining communication with students, as well as "letting them know you're not going to hold it against them" (Molly, 6.15.07). In addition to using practices that reflected the importance participants placed on maintaining student motivation, preserving the connection that facilitates the student-teacher interaction was also an aspect of consideration. In recognition of the lack of knowledge participants had about students and the critical importance of maintaining student motivation in a virtual school course, participants implemented practices to manage their courses on a case-by-case basis.

Goal 2: Keeping the course a safe place

Another way participants described maintaining the integrity of their courses was by observing interactions between students that took place in the public venues of the course, such as the discussion boards. The emphasis placed on the use of discussion boards by participant's points to the value of constructive communication in virtual course environments. Participants described using discussion boards both as a means for engaging students in critical thinking about the content as well as a space to prompt discussion and debate. However, at times, students' dialogues demonstrated inappropriate language or tones while they were engaged in heated debate. Participants described how, when approaching these situations, they used practices to keep the course a safe place by demonstrating "respect for students' right of opinion" (Chris, 5.30.07) while emphasizing the importance of the students' "using constructive communication" (Laura, 6.20.07) in their interactions with each other.

Belief 5: Supporting Student Success

Goal 1: Utilize support structures

The reality of the distanced interactions taking place in a virtual course environment requires the use of support structures that may be outside of a virtual course context in order to best support student success. The formation of class community was a way for the participants to ensure that the students had an available venue of support at all times. In talking about her experience teaching AP physics, Rhonda felt she was encouraging student success by working to establish a community that shared an "us against the test" mentality. In her environmental science class, Holly also emphasized the need to foster community and discussed how it was important to use the discussion boards to foster and encourage students' passion about the content.

The descriptions provided by the participants also indicate the value they placed on mentors as a means of helping the participants meet students' needs by providing the students with face-to-face, one-on-one, content-based support. Participants talked about the importance of communicating with these individuals closely to ensure students were getting the support they needed. Holly described the importance of forming relationships with mentors, but also described how valuable they were for serving as intermediaries between virtual school teachers and students' parents. Shannon described how, when utilizing mentors, she first establishes relationships with them:

I also like to form strong relationships with the mentors of their school because those are the people that actually see them every day and if they know what's going on I have a much better chance of having students—pass my class successfully. (Shannon, 6.14.07)

Based on the participants' feedback, one can see that mentors add value to students' overall learning experiences, seeing as to the fact that, among other things, mentors are able to communicate with parents on behalf of virtual school teachers to ensure students' successful completion of courses. While there is currently no consistent description of the roles of mentors, which delineates their responsibilities, participants, based on their desires to meet their students' needs, formed this understanding for each mentor

Goal 2: Meet students' needs

Participants also described the use of practices that increased their accessibility, which impacted the opportunities offered to meet students' needs. In addition to the use of *just-in-time* practices, participants described how they provided students with multiple means for students to contact them in an effort to prevent frustration. Shannon described reducing frustration by increasing her accessibility in order to give students the attention they needed. Holly described the role accessibility played in minimizing frustration—she tried to provide anytime availability for her students. At the core of how Shannon and Holly talked about increasing accessibility is

the goal of providing students with multiple opportunities to get support, which indicates the necessity of using practices to facilitate communication among students and teachers to prevent frustration.

The relationship between participants' activities in the courses and meeting students' needs leads directly to the importance of virtual school teachers' needing to be active in the course environment. By maintaining a high level of activity in the course environment, participants described being able to meet students' needs and minimize their frustrations by letting them know they "had a real teacher" and not going through the courses alone. Participants also discussed the practices they used to communicate to students the investment they had in their learning.

Goal 3: Structure content to scaffold learning

Participants structured students' experiences in the courses by carefully designing and organizing content, drawing from their knowledge of the content and their knowledge of how students' best learn content. The initial design of content centered on aligning it with state standards and benchmarks, which ensured students enrolled in virtual courses were prepared with the same knowledge as those students in a face-to-face course. Participants described the practices they used to set the stage for student learning and establish a context for courses that structured the experiences students would have.

Participants also mentioned that their desire to meet students' needs drove their organization and structure of course content. Maintaining students' motivations served as an underlying motive in the emphasis placed on creating an organized, structured environment for students. Leigh described the value she saw in effective content organization as a means for putting students "on a journey" where "they can work at their own pace but they still have to do things in order" (Leigh, 6.14.07).

Interpreting the Goals of Virtual School Teachers

The focused codes in this study are interpreted to represent a second component to the grounded theory developed as a result: the goals of virtual school teachers. In serving the main goal of this study, is to form an understanding of the practices of virtual school teachers, this level of coding represents a point of mediation between participants' beliefs and their practices. Eleven focused codes emerged to represent participants' goals in this study. They include effective communication, preventing misinterpretations, guiding students' construction of knowledge, individualizing learning, maintaining the integrity of a course, keeping the course a safe place for students, making content accessible, integrating technology, utilizing support structures, meeting students needs, and structuring content to scaffold student learning. The focused codes representing participants' instructional goals outline the context to which participants selected and implemented practices.

A main theme that can be used to characterize participants' goals is the importance of maintaining student motivation and minimizing frustration. Consistent with existing research exploring the role of communication in the online environment (DeBorough, 1999), the use of effective communication strategies emerged as a primary goal of participants. Tied to the belief in connecting with students to cultivate knowledge, participants discussed the importance of using practices to communicate effectively with students. This goal provides a context for how participants needed to select practices to facilitate the formation of good relationships with students by being responsive and demonstrating a presence in the course that communicated to students the commitment they had to their learning. The importance of using effective communication to motivate students and minimize frustration represents a goal that is evidenced by existing research (DeBorough, 1999; Glen, Jones, & Hoyt, 2003). However, one cannot find literature to support a second goal associated with this belief—a goal that defines the use of

practices to accommodate the lack of visual reinforcements, such as facial recognition or hand gestures. Participants' goals of preventing misinterpretations provide a context for defining a set of practices that may be a novel contribution to the field of online learning. Establishing this goal serves to direct how participants communicated emotion and self-monitored the tone of their communications with students. Discussed directly in terms of motivation, the use of the associated practices minimizes the potential for negative communications with students, which could result in their losing interest in a course.

A relationship among the goals of participants associated with their belief in fluid practices and maintaining student motivation also exists. Recognition of the need to adapt existing practices to best suit the online environment and the use of practices to individualize learning are practices that define the belief of fluid practice. Related to the goal of guiding students' knowledge construction are characteristics that provide a context for defining the associated set of practices. The characteristics defining this goal are the following: adapting traditional practices to best suit the environment, encouraging independent thinking, and enhancing the environment to support student learning. The need for online teachers to adapt their practices is documented in existing literature (Easton, 2003). The necessity for online teachers to use practices that foster students' independent thinking is also recorded in existing literature (Anderson, 2004; Kanuka, Rourke, & Laflamme, 2007). An area that is not explored in the literature, however, is the enhancement of the environment to best suit students' needs, even though this was an area that participants emphasized as being critical to the success of students in their course.

Equally important to guiding students' construction of knowledge is the goal of individualizing instruction. Sharing many of the same characteristics as the goal of guiding

students' knowledge construction, individualizing learning focuses on the use of practices that are tailored to the needs of individual students as opposed to the needs of all students in a particular course. This goal has a more direct impact on the motivations of students, as it directed the participants to select practices to meet the needs of individual students, which ultimately prevented students' frustration with the content. On a more general level, the diverse needs of students are met through the goals associated with the belief in engaging students with content. By selecting practices associated with the goals of making content accessible and integrating technology, participants provided students with the maximum opportunity to be successful and engage the content in a personally meaningful way. The concept of attending to the diversity of students through the use of practices to make content accessible and integrate technology is associated with the application of learner-centered strategies in the postsecondary online setting. The use of these practices to account for the variation of learning styles is considered a critical component for supporting student success (Graham et al.). Also related to optimizing the context for student learning are the goals related to the belief in supporting student success, which include the following: utilizing support structures, meeting students' needs, and structuring content to scaffold learning. The concept of the mentor as a support structure was introduced earlier in this chapter. While there is currently little research to define this role, the use of practices that facilitated participants' interactions with mentors was identified as an important dimension to consider in supporting student success.

A more well-recognized instructional concept associated with student success in face-to-face settings is the structuring of content to scaffold student learning (Kramer & Schmidt, 2001). Since the participants lacked face-to-face interactions, emphasis was placed on using practices that guided students' interactions with content and motivated them to continue engaging it. By

structuring content to scaffold student learning, participants demonstrated the use of a store of content knowledge that guided the activities and assignments they chose to build into their courses. The amount of knowledge teachers have about the content they are teaching is an elemental prerequisite for the use of pedagogical practices and strategies that effectively support student learning (van Driel, Verloop, & de Vos, 1998). The experience and depth of knowledge associated with content areas also direct teachers' selection of content topics, materials, and strategies, as well as their abilities to effectively perceive students' needs (Fenstermacher & Richardson, 2005; Gudmundsdottir, 1990; Shulman, 1999).

A final pair of goals that is related to perceiving students' needs includes maintaining the academic integrity of a course and keeping a course a safe place. These two goals categorize the practices participants described using to maintain the academic integrity and personal safety of students in their courses, and define participants' belief in managing the course for students learning. Maintaining the academic integrity of a course is characterized by the use of practices to address instances of cheating and plagiarism taking place. While there is some evidence that distance learners cheat less than students in face-to-face settings (Kaczmarczyk, 2001), this goal directs the use of practices that focus on preserving the connections established with students in order to maintain their motivations to complete a course. There is little research exploring the use of practices to address instances when a student is identified as being involved in a personal crisis. Similar to the case of cheating, teenage incidences of suicide is decreasing annually (Gould, Greenberg, Velting & Shaffer, 2003), but as indicated by participants in this study, research into the appropriate strategies to use when a virtual school teacher identifies a student in crisis is needed.

The goals associated with the focused codes from this study outline the context for the selection of strategies and practices that set the stage for students' learning. In establishing this context, participants drew together knowledge of students, content knowledge, and an understanding of the instructional context in order to select and implement practices that met the needs of all of the learners in their courses.

Pedagogic Practices

In the following section, the pedagogic practices of the virtual school teachers who participated in this study are presented. These practices represent the first level of coding in the grounded theory process: the initial codes. Since the initial codes represent the actual practices used by the participants, they are interwoven into the analyses that follow. The initial codes are identified in the following section using bold text to facilitate their identification as part of the audit trail. These codes were selected for inclusion to represent the specific enactments of the goals and beliefs described by the participants. In order to facilitate the understanding of the connection to the pedagogic goals addressed in the previous section, the pedagogic practices are discussed in the following section in relation to the specific goals they satisfy.

Pedagogic Practices Related to Effective Communication

Participants described using several different practices to facilitate their goals of effective communication. One of the primary practices relates to the use of **clear, articulate writing** strategies to help facilitate the support the participants provided to students. By using writing skills to translate the more sophisticated understanding of the content area, participants were able to provide students with **content-related feedback** that effectively communicated the information the students' needed. One of the participants, Melanie, described the importance of clearly articulating responses to her calculus students:

I had to know the calculus material inside and out so I could be able to phrase my answer to them in a way they'd understand only through e-mail. They don't have the luxury of having the face-to-face and having me write the answer down, they have to be able to get it from the words I write, so they can do that through my knowledge and of course through the way that I write to them as well. (Melanie, 6.4.07)

The use of practices to effectively communicate also served to facilitate participants' ability to "connect with students, and connect the students to the content" (Holly, 6.11.07). By **sharing aspects of their own worlds**, participants were able to find "common points to make connections with students" (Rob, 6.11.07). For some participants, the discussion board was a common venue where both the teacher and student shared information about themselves. Using this space to **draw on common points**, participants described what they learned about their students, which facilitated their formations of connections. Another participant by the name of Chris described how identifying common points between his life and the lives and interests of his students facilitated connections:

The way I do it is every student has to introduce themselves and every time in this we are in a discussion board and I ask them to tell me a little bit about themselves and I try to make a connection with each student. If someone says I love heavy metal, I will say, oh, I am a big Ozzy Osbourne fan, what do you think? And then we start a conversation and make that connection from the very beginning. If you can do that again, I think you have got him hooked and usually you can keep them till the end. (Chris, 5.30.07)

This quote also indicates the motivational component of the connections formed as well as a means by which participants were able to **demonstrate their interest, care, and concern for students**.

Pedagogic Practices Related to Preventing Misinterpretations

Participants' writing skills were critical to **communicate effectively** with students, the use of practices to self-monitor their communications with students had a greater relevance for developing connections. These practices indicate how participants demonstrated **self-awareness regarding the emotional tone and style** of their communications in relation to their goals of

preventing misinterpretations. Julie articulated the importance of using self-monitoring practices in relation to the connections she formed with students:

I have to use parenthetical [phrases] in order to express what I am feeling to students, often times to soften the words I am saying so, they don't read, let's say anger or frustration into the words. I have to add something to soften that, so they know how I am feeling when I am talking to them, and I tell them over and over and over. I am patient, ask questions, you won't upset me; you won't irritate me, I have to tell them that because I can't show them. (Julie, 5.30.07)

In this quote, both the relationship between **communicating emotion** and reassuring students of the availability of help indicate how participants used practices that prevented miscommunications as a means to facilitate the connections they formed with students.

Pedagogic Practices Related to a Teacher's Role as a Knowledge Guide

The participants addressed several practices that they used to guide students' construction of knowledge. These practices represent their beliefs in fluid practice. A core theme among participants' descriptions was the use of practices to "engage students in dialogues to support content learning" (Shannon, 6.14.07). The practice of **communicating to engage** students with the content facilitated participants' ability to "make the learning fluid and moldable" (Rob, 6.11.07). This communication took place in varying ways. For some, it was through e-mail communications, while for others, it was via course discussion boards. Julie described her use of the discussion board as a place to have **content-related conversations** with students for "broadening their thinking, for deepening their thinking, by sharing my own life experiences, [and] for probing them to talk more deeply about the subject at hand or relating experiences from their own observations" (Julie, 5.28.07).

Participants also suggested that in their roles as guides to students' construction of knowledge, it was important to encourage students to **expand their general knowledge** in relation to specific content areas to facilitate their connections with those areas. Casey described

how she used practices that gave students the opportunity to **explore their own interests in the content** to serve this goal:

I let students take whatever we are studying and pick a topic that interests them from the subject matter to help them expand their knowledge beyond the expectation, and give them an opportunity to look deeper into a specific area. (Casey, 5.31.07)

Using practices to **engage students in dialogues** and provide students with opportunities to **explore their own interests** in particular content areas is an indication of how participants guided students' knowledge construction in virtual school courses.

Pedagogic Practices Related to Individualizing Learning

The practices participants used to individualize learning facilitated their abilities to **provide** students with what they needed when they needed it. This involved **tailoring the use of practices** to facilitate and **support the individual learner** by satisfying his or her course-related needs. By combining the knowledge participants gained about their students with their understanding of how to make the content understandable for students, participants used practices to individualize the learning experience. The following quote exemplifies this, as Elisha's description for her process of individualizing learning is clearly tied back to her constant monitoring of students' learning:

You really have to tailor to the individual student so therefore what I'll do is I'll e-mail the student the messaging system and I just know that some of your test scores are low and I'm finding that maybe you're having a difficult time with the concept of the Pythagorean theorem. Here's a website, maybe you'll go take a look or I, you know, write down some notes and I scan them and then attach it and just say, you know, 'take a look at this' or I will call a student on their phone and talk through things so there's a lot of avenues to take and...so with my algebra class it really is a lot more one-on-one and I mean that in the true sense where it's just myself and one student talking through things. (Elisha, 5.24.07)

Practices such as this one represent participants' beliefs in fluid practices and how, through their flexible uses of strategies, they could address issues that could potentially result in student frustration. Participants also described how they drew from the connections they had with

students to direct the **adaptations they made to the course structure**. Rob felt that there was more to meeting the needs of students than making himself accessible and talked about the value of “comprehending where they are coming from, and what they need” (Rob, 6.11.07) in order to provide them with adequate support. For other participants, striving to **understand the students’ world** put them in close enough touch with students to guide the participants’ uses of practices related to the adaptation of course content to better support the learning of all students. Laura talked about how she used practices to individualize learning in response to her understanding of the capabilities of the students in her class: “One of the trimester classes, my group was really, really struggling, and so I went in there and I hid some of the assignments so it didn’t feel so overwhelming” (Laura, 6.20.07). The practices participants used to individualize learning are indicative of their beliefs regarding the use of fluid practice to cultivate student knowledge.

Pedagogic Practices Related to Making Content Accessible

The practices participants used to make content accessible to students reflected their commitments to **reaching the diversity of learning styles** of their student population and their students’ varying backgrounds with the content. Participants’ used **content-specific practices** to support the accessibility of the information presented to students in varying subject areas. To illustrate this further, the practices participants described for making the content accessible and integrating technology into each content area are discussed in the following section.

English: English teachers described the use of practices to **facilitate the connection between students and content** by using their personal knowledge of students and interactions they had with them. By using this knowledge, English teachers were able to facilitate students’ connections with literature by scaffolding their interactions with it and **pointing out the distinct connection between the content and the students’ lives**. The following quote exemplifies the

use of knowledge of both the students and the content. Kristi articulated how she talked with students through some text to draw out the connections it had to the students' lives:

I found a lot of times with my most hesitant students, they just needed me to sit down with them and say, now, wait a minute, you're a heck of a farmer because that's where we live, we're very rural. So, if you are reading "A Raisin in the Sun" and you listen to the main character talk about his struggles as a man, but what you seen in the farm community as a struggle for the men there. No, we're not going to go open a liquor store, but maybe you live in a farm community but there are no fields available, or what type of farming will I go into and what are some of the struggles they will go into? They watch the market, they have to know the economy, and it's month to month for them, on paper they're broke all the time. (Kristi, 5.30.07)

The relationship between the formation of connections and making the content meaningful for students is also illustrated by this quote. Shannon and Julie also discussed how they used practices to help students "**connect with the content**" and see "the relevance the text has to their life [*sic*]."

Social Studies: Social studies teachers facilitated the connection students formed with the content through well-crafted activities that fostered the students' thinking about the content in a way that indicated its direct relevance for their lives. In the following quote, a description is provided that illustrates how social studies teachers use activities to facilitate the student-content connection. The description of the activity provide by Molly is for the American government course she teaches. It demonstrates the careful crafting of an activity to make **it personally meaningful to students** and facilitate the students' learning of the content, which in this case were divorce laws:

In another one, we talked about ... marriage and divorce laws and they [students] are given an opportunity either to create a brochure for young kids on how you cope with divorce or they can compare and contrast the different types of divorce laws in the West and then they have to look at the United States and another western country and compare that to an eastern country or an African nation and how are the divorce laws similar or different. They have really done some in-depth looks into that, some in-depth work in that because it's something that they are so closely related to. So, they have a passion. Some of the brochures have just been—they make me cry because of some of the things that they say and how they would help kids or young people of their age even. (Molly, 6.15.07)

Not only did this activity indicate the personal relevance the topic had for the students' lives, but it also encouraged their consideration of the content in terms of a global perspective. Social studies teachers also **integrated interactive elements** into their activities. Laura talked about how, in an effort to facilitate students' connections to the content, she integrated video clips to provide the students with concrete examples to which they could apply their knowledge and develop their understanding for abstract psychological concepts. The following quote by Laura describes how she took this approach with an activity to facilitate students' conceptual understanding of dualism:

One of the clips they watch is "One flew over the cuckoo's nest" and that happens to be from chapter one where it talks about the very basics of how psychology started and what dualism is and things like that. So, they get to apply those terms and what they have learned to the video. This is followed by an assessment where students answer a series of questions, then I physically go in and grade every single answer and if it's not correct, then there's a place for me to give them comments back. (Laura, 6.20.07)

By providing students with an example to which they could apply their knowledge, they were given a chance to connect with the content through the formation of a concrete understanding for its underlying concepts.

Math: The practices the math teachers used to facilitate students' connections with the content were consistent with the use of outside resources to help students form an understanding of abstract concepts much like Laura did. However, what differed were the purposes the use of outside resources served. While Laura described the use of outside resources like video clips for providing students with opportunities to apply their knowledge, math teachers described the value of outside resources in terms of their use for **illustrating the concepts embedded in the content**. In providing students with access to Web-based resources that demonstrate the mathematical concepts in relation to the real world, participants skillfully integrated experiences to help make the abstract nature of the content more concrete. Rob and Nancy discussed how

they carefully selected and integrated resources into their trigonometry and statistics courses to scaffold students' connections to the content by demonstrating the contents' application to the real world:

I selected some videos and then a computer model of how a fire would start here and there with the winds, without the winds and showed how these fire suppression teams would go in and fight a fire. (Rob, 6.11.07)

My goal is to introduce them to the databases that are available on the Internet, try to find things that they're interested [in] so that they know how to do authentic research themselves if they're ever wondering for example [about] traffic flow in a city. You know, that data is out there. If you're wondering where the best places [are] to put your business, you want to be concerned of the traffic flow, you know, that's all things that [are] statistically related in life [and] applicable. (Nancy, 5.30.07)

Science: Science teachers also found value in the integration of Web-based resources to provide students with multiple opportunities to interact with content. They also found this integration to be a means for **demonstrating the relationship between the content and the real world**, which is consistent with the value math teachers attributed to the integration. Casey described her practices in relation to meeting course objectives, which directed her selection and integration of Web-based resources to serve a learning goal she had set for students. She carefully selected resources that would facilitate and reinforce content-based concepts:

I use rich media a lot, and I have already talked about that the video streaming, gizmos, websites, a lot of interactive things...many interactive things but don't pile them on just to make it fun. I want it really to have meaning and I don't use things just because they are colorful, wonderful, I use them because they have meaning [and] they go along with the content and they help the students learn the concepts. So picking those out, it's a great deal of effort. (Casey, 5.31.07.)

A consistent theme throughout all of the descriptions is how participants used their knowledge of students and content to facilitate the practices they used to foster the connection between students and content. The variations in how participants across content areas reached for this goal provides a means to understand how the two forms of knowledge are translated to specific content-related practice.

Pedagogic Practices Related to Maintaining Academic Integrity

Two of the practices participants used to observe the environment was the **monitoring of the work submitted by students** as well as the monitoring of the interactions taking place on the discussion boards and other public venues of the course. While participants described **posting academic honesty policies** to curb the occurrence of cheating, they acknowledged it was probably happening more often than they were aware. One distinction of the practices participants used to address cheating illustrates the cautious approach they took to minimize the potential negative effect it could have on their relationships with the students. This quote by Molly discusses this:

I have had to address cheating with students, and I just tell them “I found in your paper that you wrote text that you took from a website, this is the website that I got it from, you are welcome to redo it.” But then I begin to hear from the mentor of that student rather than the student himself, because they are embarrassed and then they are afraid to communicate. I have never put the student down. I have always said this is what happened, this is what I saw, and I have always given them the opportunity to redo, but I think sometimes kids have a tendency to shy away from criticism. (Molly, 6.15.07)

Some participants acknowledged how becoming more informed about students’ backgrounds could direct the strategies they used to address situations such as what Molly described. Holly talked about an incident of plagiarism she observed in the discussion board area of her course in which a student had copied and pasted someone else’s posts and called them her own to satisfy requirements for an assignment. As can be seen in the following quote, Holly described how she reevaluated the consequences after finding out about the student’s special education status:

It was in a huge class, and all of a sudden the one student she started posting many, many posts at the same time and so in one day I might get ten different discussion postings and I was reading them all. Then all of a sudden I’m like what’s going on, this sounds kind of familiar and I realized that she had actually gone through and copied somebody else’s posting that sounded good to her, changed the font, changed the color and reposted it for herself. The school was contacted and she was the special [education] student. So, we came up with a solution for this particular student that was different than you might do for

another student, it kind of depends on the course, but I didn't see the advantage of her doing ten postings in one day to give her ten zeroes. So, she was required to come in and rewrite those and repost them to the board. She lost some points but did not get ten zeroes because that just didn't seem to be productive for her or the best way to deal with it. (Holly, 6.11.07)

Holly's description provides valuable insight for understanding how some participants described their approaches to addressing instances of students cheating and plagiarizing, as well as understanding the importance of **individualizing consequences**. The quote also demonstrates the considerations Holly made for what was best for the student and provides a general representation of how participants addressed meeting students' needs as a priority.

Pedagogic Practices Related to Keeping the Course a Safe Place

To reduce the use of inappropriate or abusive dialogues between students, participants **posted guidelines**, much like they did for cheating, to curb such activities. In tangent with the guidelines provided, students were also given examples to facilitate their understanding of what constructive communication looked like in the online environment. In the following quotes, a practice for **facilitating students' use of constructive communication** is discussed by Casey as a means for raising the bar in terms of expectations to support the collaborative opportunities in the online environment and by Holly in relation to her use of Netiquette guidelines to facilitate the identification of inappropriate student conduct:

I also watch for any negative things they write to each other. It's not allowed on line [*sic*]. The online environment is cooperative and we communicate elegantly and so I just have to raise that bar. (Casey5.31.07)

Early on make sure that I set guidelines for appropriate online conduct and we go for netiquette rules, they have a netiquette quiz in a couple of my classes, and this is really important. There have been a few instances where I've had to intervene, when netiquette rules were not followed. (Holly, 6.11.07)

While these preventative steps may curb students' use of inappropriate language or conversations, they certainly do not eliminate them. As can be seen the following quote, Chris

provided a context to understand this issue by recounting an incidence of disrespectful commentary between students resulting from a content-based conversation:

I read the post to them and I said this is how this can be interpreted, is that the message you were trying to portray? If it was not, please understand you have a right to your opinion but are there other ways we could phrase this so you feel like you have a voice, but you are not impinging on the voice or the learning environment of the other classmates. (Chris, 5.30.07)

Similar to how teachers described approaching cheating, Chris directly addressed the situation with the students in a respectful, cautious manner by encouraging the students' critical reflection of the situation. In addition to facilitating the practices participants used to address instances of inappropriate language or behavior, the connections participants formed with their students increased their abilities to pick up on subtle cues that indicated a student might be in personal crisis. Both Chris and Nancy described how **observing the environment** supports the identification of students in crisis and how virtual school teachers can facilitate an intervention:

I had a student one time that just, he used the discussion board as a cry for help and just said, something to the effect of no one cares, I'm going to get a gun. We [MDVS administration and he] contacted the police right away and the school district and they went out [to] the students [*sic*] house...but issues like that really worry me, because you're not on 24 hours, they're not right in front of you. (Chris, 5.30.07)

I've actually found that my counseling skills have been one of my best assets for teaching health because I'll get kids that pour their heart out, you know. One of the sections that they write about is five challenges in their life and then there are different skills, there's a list of skills that they're supposed to read through and then when they pick a challenge they have to pick a skill to apply to that challenge in their life [*sic*] and describe how they use that skill to try and cope with it. They get into some really personal things and I just think it's easier for a student to be so personal to somebody that's not going to tell their mom, you know, even though I actually have had to make a couple of phone calls because I was concerned about students, I generally call their school counselor who will be in contact with parents. (Nancy, 5.30.07)

Chris and Nancy's descriptions demonstrate their keen eye and instincts regarding the students in their courses. While Chris and Nancy admittedly felt ill prepared to deal with these

situations, they successfully provided students with the support they needed by **utilizing the resources available**, such as individuals at the students' local face-to-face school.

Pedagogic Practices Related to Meeting Students' Needs

The varying elements of virtual school courses that distinguish them from face-to-face settings underlie the need for virtual school teachers to make careful considerations of how they meet students' needs. The practices participants used to meet students' needs drew heavily from the connections they had with their students. As a means for meeting students' needs, participants connected with students by **making themselves accessible**. Participants' descriptions indicated the use of practices that increased their accessibility, which impacted the opportunities offered to meet students' needs. One simple practice that participants described as having a huge impact on minimizing student frustration was to **provide students with multiple means for contacting** them. Shannon described how by making herself more accessible to students she was able to ensure the students got the attention they needed, and Holly emphasized the anytime availability she tried to provide her students:

They know that I am here; they know that if they have questions for me, they can call me. I talk to my students all the time on a phone, or they can e-mail me, but I am here, I am really a teacher, I am really a person and I really want them to learn and no matter what class I teach. I mean, if I am not paying them enough attention, I can see the quality of their work going down. It is all about how much I put into it, which is a lot on face-to-face teaching too. (Shannon, 6.14.07)

I always make sure that they know that I am available at any time for them and I give them a number of ways to contact me. (Holly, 6.11.07)

The relationship between participants' activities in the courses and meeting students' needs leads directly to the importance of the need for virtual school teachers to be active in the course environment. Participants also talked about the practices they used to communicate to students the investment they had in student learning. In particular, Kristi described it as a circular process that relied heavily on her presence and activity in the course:

I show my students I am there for them by posting frequently to the course website, and by providing instruction that is clear and thorough I show students that I care about their ability to learn and understand the material. (Kristi, 5.30.07)

The practices participants described indicate how they minimized student frustration by establishing a common understanding, or context, for their involvement in their courses and by interacting with students. By being active in the environment, participants conveyed to students their interest in and commitment to students' learning. Being active also provided the participants with more opportunities to meet students' needs.

Pedagogic Practices Related to Structuring Content to Scaffold Learning

Participants structured students' experiences in the courses by carefully designing and organizing content, drawing from their knowledge of the content and their knowledge of how students best learn content. The initial design of content centers around aligning it with state standards and benchmarks, which ultimately ensures that the virtual courses students enroll in are prepared with the same knowledge as those students in a face-to-face course. Course and content design is a practice engaged in by the department chairs in collaboration with other content-area teachers. During this collaboration, a core of the content is developed that is then loaded into a course template for other instructors to use. Two department chairs who participated in this study, Elisha and Casey, described this process. Their remarks demonstrate the emphasis placed on providing students with equal opportunities by aligning the content with the benchmarks:

For the algebra one, we were told which online textbook would be used and so that was already decided for us so therefore I had to go through the textbook and map out the [virtual school] course compared to [the state's] benchmarks and standards. What was there? What the students needed, you know, where I wanted to take them and how to reach all those benchmarks? So the first thing I did was, you know, related to the textbook, to the benchmarks and figure out where I needed to go and then I went into each chapter and each section and broke that down and tried to supplement, you know, additional websites, additional places. (Elisha, 5.24.07)

I am driven by expectations, what the student is supposed to learn, what they are supposed to be able to do. I try to find a small activity for them to do that and so they know they are

picking up the things they need. I think that the materials that I like the most and I select the most are all chunks of all presentations, I guess, on a specific topic. A lot of times because of the expectations or benchmarks, whatever it is from state to state, that benchmark will ask for a very specific thing. We want a student to be able to distinguish magma and lava for instance. Then I will go and I will find a small plausible activity or something that's specific to that knowledge and I try to find something that's specific to the subject. (Casey, 5.31.07)

In regard to aligning the content to standards, participants' descriptions also indicate the use of content design practices resonant with those used in face-to-face settings, such as the matching of content to objectives. While these quotes describe the importance participants placed on meeting state standards and benchmark, they also demonstrate the use of strategies that are distinct from their face-to-face practices. In Elisha and Casey's quotes, the interest in supplementing students' experiences with the content by enhancing its initial structure through the integration of additional resources and activities is a distinguishing feature of their practices.

Clearly outlining expectations, instructions, and directions were also discussed as ways of making content accessible to students. Based on interpretations of participants' descriptions, an understanding for the independent nature of online learning served to establish the relationship between the use of these practices and accessibility. Participants acknowledged the fact that students might have been logging onto the courses with no immediate means for getting support. In order to compensate for this, it appears that participants provided students with a clear delineation for how they could navigate the content to prevent confusion or misinterpretation of what was being asked of them. Bob described the need for delineating students' courses through the content as a means for helping to ensure that students don't have questions about what they are being asked to do:

My basic philosophy of teaching is that I assume the students at the beginning of the lesson know nothing, they know nothing and you have to go from there. So, everything has to be laid out so that there cannot be any questions really, their questions are all answered. (Bob, 6.5.07)

This quote is representative of how participants talked about the clear communication of expectations as a means for making the content accessible to students and facilitating their overall perception of having a positive learning experience. Facilitating students' access of and interaction with the content was also discussed in relation to using practices for encouraging students' feelings of personal responsibility. The descriptions of these practices indicate a consistent theme with those practices used to delineate students' trajectories through courses and an understanding of the independent nature of online learning. Some participants described how students reflected on the experiences and how it encouraged them to take responsibilities for their own learning. Other participants described specific practices that they used to provide students with the necessary skills to function successfully in course environments. Kristi addressed the practices used to foster student responsibility by framing it within the context of students' futures:

There is also the organizational aspect. [The students] still need to be organized and so, I still need to nudge them to schedule their lives so their work gets done because I'm not going to be there every day collecting papers, they are not going to see the person next to them handing in papers And so, there is definitely that accountability, that personal accountability, and also the need for personal initiative to go to the computer, and say, "Okay, where am I, where do I need to be, and how do I balance that with everything else going on in my life?" They are such essential skills [to have] as an adult because many of us work in workplace settings in which we don't have daily things due, but we have projects due, we have long-term requirements. We may not have somebody over us every day, but if we get behind, our bosses are going to let us know, and that will be significant. (Kristi, 5.30.07)

What is communicated by Kristi's description is that fostering responsibility teaches students lifelong habits such as time management and personal accountability. Other participants also addressed the importance of developing these habits in students as a way to serve students and support their successes in the courses.

Interpreting the Pedagogic Practices of Virtual School Teachers

The initial codes in this study are interpreted to represent a final component to the grounded theory developed as a result: the practices of virtual school teachers. In serving the main goal of this study, the initial level of codes presents an opportunity to address the content-specific and general practices used by virtual school teachers. Out of the 71 initial codes, 60 represent participants' practices in this study, which include communicating effectively, preventing misinterpretations, guiding students' construction of knowledge, individualizing learning, making content accessible, integrating technology, utilizing support structures, meeting students' needs, and structuring content to scaffold student learning. The initial codes representing participants' instructional practices are both indicative of the strategies they used to teach their virtual school courses and representative of the goals and beliefs they held about virtual school teaching.

The importance of having a strong command of the content is a theme reiterated throughout the analysis. This is not surprising, as existing research in face-to-face settings has well established its importance (Shulman, 1986; Hashweh, 2005). What emerges as a unique distinction of content knowledge in the virtual school setting is the importance it shares with abilities associated with being an expert communicator. As stated by participants, the worth of having a breadth of knowledge for the content area was weighted only in terms of their abilities to communicate with students about the content in order to answer questions, explain concepts in different ways, and elucidate abstract concepts to facilitate the students' understanding. In providing students with these experiences, participants also indicated the value of the connections formed with students that provided them insight into student's personal worlds and interests. Having such knowledge supported their abilities both to understand the contexts from

which the students were approaching the content and to communicate with the students to support their understanding of the content within those contexts.

In traditional classroom settings, the idea of a teacher finding commonalities in the interests and preferences held by students is a common strategy for establishing connections with them (O'Neill, 1988). In regard to the online context, participants described a more intent disclosure in order to establish connections with the interests of students or facilitate students' interests in the content. Furthermore, with such an emphasis on communication, participants indicated the need to form connections with students and gain knowledge about them in order to minimize potential misinterpretations of their words by students. This not only serves to prevent a misunderstanding regarding the academic content, but also serves to gauge the affective tone of messages that can have a negative impact on students' interests and motivations in a course.

Teachers in face-to-face classrooms are knowledgeable about the importance of considering body language, facial expressions, and gesturing in how they communicate with students (Cruickshank, 1976; Brophy, 1981), but lacking the environment where those reinforcements were available, participants indicated the use of novel practices for addressing this issue. The self-monitoring practices participants described required them to take the time to analyze their communications in order to anticipate how students might interpret them. To further facilitate students' correct interpretations of participants' communications, the participants utilized the tools afforded by the medium, such as emoticons, in their messages to help ensure that proper emotional tones were conveyed.

Communicating with students also had a direct impact on students' learning and served participants' roles as knowledge guides. Participants indicated how it was important to engage students in dialogues in order to not only spark their interests but also facilitate their abilities to

individualize instructions. Conversations with students also provided participants with opportunities to facilitate students' understandings of content by sharing their personal experiences and providing opportunities to probe more deeply based on students' interests in particular subjects. Likewise, by probing students' interests, participants described the value of encouraging them to explore their interests in the content areas as a means for both facilitating their expansion of basic knowledge required for them to demonstrate competency for the courses and fostering a general interest in learning.

The instructional practices participants used to form connections with students also influenced their abilities to individualize learning. By engaging students in both content- and non-content-related dialogues, participants were able to form understandings of the students' general experiences with the content. Knowledge such as this was valuable for the virtual school teachers who participated in this study as it supports the adaptations they made to their courses. Participants could use the adaptive release features available through the course environments, modify assignments, or redesign them altogether based on the diversity of the learners enrolled in the courses. In addition to students' prior experiences with the content, participants used practices to adapt content to accommodate the paces of the courses. Although in traditional, face-to-face settings there is consistency in the pacing and scheduling of courses to match the beginning and end months of a school year defined by a district, virtual school courses exist without such constraints. As such, participants used the pacing of courses as guides for the inclusion of instructional strategies, such as collaborative group assignments or the discussion boards, in their courses.

Based on postsecondary online learning research, the adaptive nature of the participants' practices described thus far and their emphasis on the formation of connections with students are

indicative of the participants' understanding of the nature of online learning (Lee & Hirumi, 2004; Kurtz, Beaudoin, & Sagee, 2004). The pedagogic practices of participants also demonstrate a consistency with the concept of learner-centered practices, which are associated with the provisioning of education on an individualized basis in order to meet the needs of all students (McCombs, 2001). The individualized nature with which participants approached the preparation of students' academic experiences is echoed in the practices they used to address situations when academic integrity was called into question. Participants demonstrated the use of practices that were focused on the individualized nature of the contexts when addressing issues of cheating in courses. Cheating is clearly an issue that arises in both online and offline settings (Bushway & Nash, 1977; McCabe, 1999), but in the virtual course setting, addressing this issue can be complicated by the lack of knowledge instructors might have regarding students' backgrounds. Hence, participants customized the consequences they issued to students as penalties for cheating based on the students' individual contexts.

Participants also described practices to establish guidelines for acceptable, or productive, communications. These practices included modeling how students should respond to each other in the course environment. By modeling behavior, as well as posting formal guidelines for students to follow, participants were able to keep the dialogues between students nonthreatening and conducive to their learning. This was maintained by participants' monitoring of the online discussions happening between students. The efforts made by participants to form an understanding of their students' worlds through the connections made with them also impacted their abilities to keep their courses safe places. The participants described how they drew from the connections made with students to facilitate to pick up on cues or indications that students were experiencing personal crises. When such scenarios arose, participants were quick to

respond to the situations and initiate interventional strategies that could help the students get through the crises.

In face-to-face settings, teachers use practices to support students learning of content from different subject areas (Hashweh, 2005). Consistent with existing research, the participants described using practices that were appropriate for the content being taught and the student population of the course. These content-specific practices served to make the information presented in the courses accessible to all students by accommodating a variety of learning styles. Thus, these practices differed among content areas and represented an understanding of both the content being taught as well as the best ways to facilitate its delivery. This idea is consistent with Shulman's (1986) concept of pedagogical content knowledge, which calls upon content-area knowledge and an understanding of the best modes of delivery.

In response to the medium, participants had to adapt their practices to accommodate the online environment, and as such, demonstrated a varied use of Web-based resources and course-based tools to facilitate content instruction. For example, dialogue with students was a practice all participants used and valued, but there was a greater academic emphasis placed on it by the English teachers. This emphasis was paired with the English teachers' beliefs in forming connections with students to facilitate the provision of critical feedback on student writing, since the critical feedback is sometimes difficult for students to receive. Math teachers differed in the emphasis placed on dialogues and instead focused more on the selection and integration of Web-based resources in order to facilitate students' formations of a concrete understanding of abstract concepts. Both of these examples demonstrate participants' use of content knowledge paired with an understanding of how students learn the content best. What these two examples also indicate is an additional consideration for technology. The use of Web-based resources or

course-based tools, like the discussion forum, are given equal weight in terms of the contribution they can make to facilitate students' understanding and learning of content.

In addition to making content accessible, the use of these practices can also be seen in relation to the goal participants have for meeting students' needs. Accessibility and responsiveness play an important role in both face-to-face (Chickering & Gamson, 1987; Gorham, 1988) and online classroom settings (Picciano, 2002; Woods & Baker, 2004). However, in this study, the practices participants used to satisfy this dimension of their instructional roles proved to be distinct to the virtual course setting. Lacking a brick-and-mortar office, location, or even a set time where participants met with their students, providing multiple means for contact was critical to communicate accessibility. Participants gave students e-mail addresses and phone numbers, and some even established virtual office hours where they would meet with students via the instant messaging systems built into the course environments. It seems that even without having a defined place or time to meet with students, participants were committed to being very accessible to their students. Access was further reinforced through their responsiveness to students. While MDVS administration stipulates that teachers respond to students within a 24-hour period, many teachers were committed to providing students with a response in a far shorter time. This was not only a means for reducing student frustration, but also a way to establish the participants' presence in their courses. By demonstrating a presence and being active in course environments, participants ensured students' understanding of what was required of them and supported their maintaining of a schedule by encouraging them to turn materials in on time.

While the practices used to scaffold students' learning are consistent with the foundational basis of instructional design theory, two aspects of their use in the virtual course setting distinguish them from their application in face-to-face settings. The first is the heavy reliance on

the visual organization of information presented in the online course environment. While traditional theories of instructional design provide a basic set of recommendations for how an instructor should take a content-area topic, break it up into small, digestible pieces, pair those pieces with activities, and then present them to students (Gagne, 1977; Reigeluth, 1983), they do not provide any indication of how it should be visually presented for student consumption. Also not addressed by traditional conception is the flexibility and malleability of the content virtual school teachers demonstrate in their instructional design practices.

Conclusion

The analytic methods associated with constructivist grounded theory were implemented in this study to facilitate the interpretation of data. The initial, focused, and selective coding of data paired with the constant comparison of codes within and among data sets, ultimately resulted in the formation of a grounded theory to describe the pedagogic practices of K-12 virtual school teachers. The selective codes are interpreted as representing participants' beliefs, the focused codes are interpreted as representing participants' goals, and the initial codes are interpreted as representing participants' practices. The interpretation of each level of coding reveals both the consistencies of these aspects of pedagogic practice with existing knowledge regarding face-to-face and postsecondary online teaching, as well as some unique distinctions. What is also evident is a clear relationship among the three dimensions associated with virtual school teachers' pedagogic practices and an indication of the value of exploring the perspectives of these individuals in order to better define the craft of virtual school teaching.

CHAPTER 5 DISCUSSION AND IMPLICATIONS

Introduction

The purpose of this study was to explore the pedagogic perspectives of K-12 virtual school teachers in order to form an understanding of the practices they use to teach their virtual school courses. Spanning geographic and educational barriers, virtual schooling has emerged as a means for bolstering the equity of educational opportunities by providing students with access to an anytime, anywhere education. In virtual school courses, just like in face-to-face classrooms, teachers play an important role. The national recognition of the potential of virtual schools has drawn more attention to the fact that there is little knowledge regarding the practices virtual school teachers use in their courses.

In chapter 4, a description of virtual school teachers' practices, as they relate to their goals and beliefs, was presented. The content embedded in the structure and organization of the chapter provides both a description for each category as well as an outline of the relationship among the beliefs, goals, and practices of virtual school teachers. In what follows, the findings of this study regarding K-12 virtual school teachers' beliefs, goals, and practices are discussed in relation to existing research addressing the pedagogic, instructional design, and communication practices of face-to-face and postsecondary online teachers. Presenting the findings of this study in relation to existing research will elucidate points of consistency among the practices of face-to-face and postsecondary online teachers and the practices of virtual school teachers, as well as provide a basis for recontextualizing those practices in relation to K-12 virtual school teaching. The outcomes of this discussion will highlight the relevance of the findings for preservice teacher education programs, in-service preparation programs, and policy development. This

chapter concludes by identifying areas of future research regarding the practices of K-12 virtual school teachers that need to be explored further.

Discussion: Findings and Implications

The positioning of the selective codes around the core category *cultivating knowledge* presents a theory for understanding how virtual school teachers select and implement the pedagogic practices they use in their virtual school courses. The clear relationship among the beliefs, goals, and practices of participants in this study reflected a consistency with existing literature that explores the relationship between the beliefs and pedagogic practices implemented by teachers in face-to-face settings. In the face-to-face teaching context, a teacher's epistemological and content-area beliefs guide the selection of practices associated with his or her instructional practice (Kagan, 1992; Winne & Marx, 1982). Just as research has revealed the connection between the beliefs and practice of teachers in face-to-face settings, the findings from this research study explicate the underlying motivations and justifications for the practices virtual school teachers use to teach their online courses.

Equally important is for the findings of this study to be discussed in relation to existing research on the instructional practices of teachers in both face-to-face and postsecondary online settings. Therefore, this section discusses the findings of this study in relation to the areas of existing research addressed in chapter 2. The three areas of pedagogic, communication and instructional design practices used to structure chapter 2 will serve as sub-headings in this section to facilitate the presentation of this study's findings. Organizing the presentation of findings in relation to the pedagogic, communication, and instructional design practices utilized by face-to-face and postsecondary online teachers will support the identification of consistent points with existing research. Likewise, the opportunity will be provided to highlight points of distinction regarding the implementation of practices associated with the three categories in

terms of the virtual course context, and ultimately clarifying how the outcomes of this study extend what is currently known about K-12 virtual school teaching.

Pedagogy

Research indicates that face-to-face teachers approach their teaching with already-existing views regarding the nature of knowledge and cognition (Nespor, 1987; Prawat, 1992). These views represent teachers' epistemological beliefs and serve as the underlying motivation for the selection of practices they use to deliver course content (Fenstermacher, 1978; Pajares, 1992). Teachers also hold beliefs regarding the content area they are teaching (Kagan, 1992; Winne & Marx, 1982) that serve to further inform their selection of appropriate pedagogical strategies for instructional contexts (Richardson, 1994; Nespor, 1997). The combination of epistemological and content-based beliefs facilitates a teacher's ability to scaffold, structure, and enhance the instructional experience (Shulman, 1999; Kagan, 1992; Prime & Miranda, 2006) as well as to assess student knowledge and learning (Prawat, 1992).

Consistent with research exploring the beliefs of teachers in face-to-face settings, the outcomes of this study indicate that the same relationship exists between virtual school teachers' beliefs and practices. This knowledge provides a beginning point for addressing the need articulated by current research for understanding how online teachers transition their instructional practices to best suit the online setting (Egan & Akdere, 2005). The analytic process of this study identified five pedagogic beliefs underlying the practices of the virtual school teachers that were interviewed. The pedagogic practices participants described selecting and implementing in their virtual school courses represents the adaptation of the beliefs they held for teaching in the face-to-face setting to better suit the instructional context of the virtual course environment. Therefore, the beliefs identified through this study represent the underlying motivations or source of the practices teachers used in their instructional settings.

The connection between beliefs and practices in this study represent the process by which participants transitioned the practices they used to teach in face-to-face settings for teaching in the virtual course environment. The identification of this process raises questions as to the knowledge and circumstances that supported the transition. A recurrent theme communicated during participants' interviews was the importance of understanding the nature of online learning for selecting the instructional practices that they used to teach in the virtual course setting. Research exploring the perspectives of postsecondary online teachers indicate their desire for knowledge related to the nature of online learning and the theoretical concepts associated with it to inform their transition of instructional practices to accommodate the online setting (Betts, 1998; McKenzie, Mins, Bennett, & Waugh, 2000; Bonk, 2001; Wilson, 2001). Participants addressed such knowledge as a critical component of their successes, which reinforces the importance of preparing postsecondary and K-12 online teachers with adequate information related to theories of online teaching and learning.

Knowledge related to the theories and practices associated with online teaching and learning can inform the practices postsecondary online teacher use to teach online courses. Existing research on the practices of postsecondary online teachers indicates the importance of focusing on the individual student and the use of strategies that are appropriate for the self-directed nature of the online course environment (Easton, 2003; Kurtz, Beaudoin, & Sagee, 2004; McCombs & Vakilia, 2005; Liu et al). Equally important for postsecondary online teachers to consider is the appropriate pairing on activities that are best suited for the instructional context as well as the student population (Cyrus, 1997; Anderson, 2004a). In face-to-face instructional settings, the use of activities and practices to mediate students' formation of knowledge is associated with the use of learner-centered strategies (Leinhardt, 1990; Bransford,

Brown, & Cocking, 1999). A consistent focus of the strategies used to facilitate students' formation of knowledge by teachers in face-to-face and postsecondary online settings is the selection of practices that support the individualization of student learning.

Consistent with existing research in face-to-face and postsecondary online settings, participants described utilizing practices to individualize instruction. This is evidenced by the transition in role participants described to function as a knowledge guide for students. Their roles, as such, served to guide students' formation of content-related knowledge (Spector & De la Teja, 2001; Vandergrift, 2002) by using practices that demonstrated a focus on the individual student versus the content. A unique distinction of participants' practices for individualizing instruction can be described as akin to the concept of *just-in-time* practices associated with face-to-face teaching. In the virtual course context, just-in-time practices are implemented to meet the varying needs of any one student enrolled in a virtual school course. Participants demonstrated the use of just-in-time practices to adapt the instructional strategies or structure of the course in order to meet the needs of students enrolled in the virtual school course they were teaching.

In addition to adapting the practices they used and the structure of content to accommodate students in the virtual course setting, the participants described the important role mentors played to assist them in meeting the needs of individual students. The utilization of the mentor's role to meet students' needs is a distinct characteristic of the practices described by the participants in this study. There is little research to support the formation of a unified definition or description for the role of the mentor in meeting students' needs. While mentors have been acknowledged in virtual schooling research as an additional venue for supporting virtual school students (Davis & Niederhauser, 2007), a clear, unified understanding of the role they fill is still needed. This lack of understanding for the role of mentors further demonstrates the lack of knowledge regarding

the virtual school as an educational organization. In this study, participants identified the mentor as a key component to the provisioning of a high-quality educational opportunity. Participants described how mentors functioned as mediating entities through which they gained important information about students' backgrounds that they otherwise were not provided. Mentors were also described as providing students with an additional source of motivation and encouragement to complete the courses.

The knowledge gained about students from mentors supported participants' ability to maintain the integrity of the courses they taught. The goal related to maintaining the academic integrity of the course categorized the practices participants used to address violations of academic integrity such as cheating, plagiarism, and the use of inappropriate or abusive dialogues between students. To achieve this goal, participants described the importance of selecting strategies that facilitated their abilities to identify instances of cheating and plagiarism. The strategies participants described for acknowledging and preventing such behavior such as posting the academic dishonesty policy, which reminds students of the penalties associated with cheating (Davis, 1992) are consistent with classroom management research conducted in face-to-face settings. The consequences that the participants associated with being caught cheating, such as taking away some or all points associated with a specific assignment (Bushway & Nash, 1977; McCabe, 1999), also demonstrates similarity with face-to-face practices. However, in describing the practices they used to address instances of cheating, a unique characteristic of participant's practices was revealed through the importance they placed on the knowledge gained from mentors about students. The participants described using the knowledge gained from mentors about students to accommodate specific circumstances. For example, in the description provided by Holly, she took points away based on an individualized evaluation of the situational context

of a student caught plagiarizing the discussion board postings of another student. Through communications with the mentor at the face-to-face school, Holly was made aware of the students' cognitive impairments. This knowledge influenced the consequences Holly implemented so as to reduce the potentially negative impact of them on this student's feeling of success in the course and discourage the student from participating. Participants also placed great emphasis on the need to communicate directly with students as well as the mentors to reassure the students that a single incident would not be held against them throughout the rest of the course. Overall, the practices participants described illustrate their need to balance the consequences associated with the potential for discouraging a student's participation in a course.

In addition to maintaining the integrity of the course, participants also described using practices to monitor the course to maintain the safety of students. Existing research investigating classroom management introduces strategies such as the monitoring of interactions as a means for maintaining students' psychological and physical safety (Cohen & Lotan, 1995; Elam & Rose, 1995). Maintaining awareness regarding the interactions taking place on the discussion board between students, in communications to the teacher, or during phone conversations with students also facilitates the assurance of students' safety outside the course environment. Monitoring these communications can provide a way to identify students in personal crises. Strategies for identifying students in crises are part of the training teachers receive during their preservice or in-service programs for teaching in a face-to-face setting. These programs equip teachers with knowledge regarding the behavioral characteristics for which to look and questioning strategies to gain further information about students' psychological states (McGee & DeBernardo, 1999; Martin, Richardson, Bergen, Roeger, & Allison, 2005). While virtual school teachers have more than likely been equipped with these skills during their own experiences in

preservice education programs for teaching in face-to-face settings, there is no research to guide the use of these skills in virtual course settings. The descriptions provided by participants indicate they used strategies developed in response to situations, which involved contacting designated individuals at students' face-to-face schools to facilitate interventional strategies.

Communication

The beliefs of connecting with students and fluid practice involved the establishment of goals and use of practices that facilitated the participants' understanding of students' prior experiences and knowledge with the content. Driven by their own content-area knowledge, knowledge of students' experiences was a main factor in the selection of instructional strategies used to individualize and cultivate student knowledge. Connecting with students is a concept addressed by research exploring the practice of teachers in postsecondary online settings, but in relation to students' perceived satisfaction with the quality of learning they experienced while taking an online course (Rovai, 2003; Glenn, Jones, & Hoyt, 2003).

While establishing the importance of connections from the students' perspectives reinforces its position as a critical concept underpinning online learning, this study presents findings related to its value from the teachers' perspectives. As articulated by participants in this study, the increased focus of connecting with students extends beyond the value that teachers hold for students' academic advancement as it also reflects the importance placed on attending to the affective state students. The connections formed with students, then, are related by participants in this study not only to being a demonstration of a teacher's presence to students but also to being a key element for reducing students' feelings of isolation. These connections also help teachers identify students in personal crises.

The virtual school teachers who participated in this study used practices to facilitate connections between students and content by helping students see the relevance the content has

for their lives. Representative of their beliefs, virtual school teachers establish goals that require them to draw from their knowledge of the content and the knowledge of their students. These goals serve to direct virtual school teachers' selections of practices to facilitate the formation of connections linking the relevance of content to the everyday lives of students. Participants did this by implementing practices that focused on making the content meaningful for students and justified it in terms of the value these practices had for making the content stick with students. The emphasis participants placed on integrating technology or supporting students' integration of technology to make content meaningful is consistent with existing research exploring how these tools can be used to facilitate students' concrete understanding of content (Owston, 1997; Jonassen, 2000; Koszalka & Bianco, 2001). This involves providing students with multiple opportunities to interact with content that is in varying formats: text, audio, and video (Johnson & Aragon 2003; Kramer & Schmidt, 2001; Vogel & Oliver, 2006).

Lacking the reinforcements associated with teaching in a face-to-face classroom, virtual school teachers establish goals to maintain the delicate relationships formed with students. In this study, participants used practices to delineate this goal by establishing the importance of self-monitoring their communications with students for potential misinterpretations. Practices associated with this finding describe how participants formed connections with students and used them to engage and motivate students in the courses. Participants described using expressions of care and concern, demonstrating an interest in the students' worlds, and being responsive to provide a foundation for forming connections with students. Self-monitoring their communications for tonal intonation and using clear, concise writing techniques were practices used to maintain the connections formed with students.

The goal of maintaining relationships established with students is consistent with existing research investigating both face-to-face (Ornstein, 1976) and postsecondary online settings (Coppa, 2004). This research indicates a positive correlation between the formation and maintenance of these relationships and student learning (Powell, 1978; Easton, 2003; Wilson & Stacey, 2003). This correlation exists as a result of the directive and corrective feedback online teacher's use to redirect or correct students' knowledge (Land & Smith, 1979; Winne & Marx, 1982). While this research provides a basis for understanding the importance of virtual school teachers' establishing this goal, it does little to provide suggestions or recommendations for how it should be enacted through practice.

The findings related to this goal provide insight for the actual strategies, practices, and skills associated with preventing misinterpretations and facilitating the continued development of relationships with students. While comprehensible writing style is a more or less an obvious requirement of preventing misinterpretations, participants also indicated that the use of expressive language in conjunction with a clear, concise writing style is important. By considering and integrating the use of expressive language, participants described the benefit in terms of student motivation and engagement with course and content, as well as the minimization of potential communications that could turn students off to a class. Another distinction in the goal participants set for effectively communicating with students is the importance of modeling appropriate communication techniques. In today's society, using instant messaging programs, e-mail and text-based communications on cell phones is common for students. Because a new style of language has emerged through these forms of communication, participants indicated the importance of making sure students understand when it is appropriate to use such language and when it is not. Therefore, the need to demonstrate a careful crafting and

selection of words in communications with students is important as it encourages students to mimic teachers' use of language in both academic settings, as well as in the students' future professional careers.

Participants used practices such as being responsive and active in the environment to meet students' needs. The practices participants described for making themselves visible and accessible to students are consistent with what current online research defines as *presence* (Bickle & Carroll, 2003; Swan, 2004). Establishing presence in the course environments was an underlying factor in how participants described meeting the needs of students. Consistent with the practices described in existing literature, participants demonstrated their presence in the course by replying to students' postings on the discussion board, providing quick turnaround time on assignments, and being responsive to the students' questions and concerns.

A unique characteristic of the how participants described establishing and maintaining presence in the courses they taught was by providing students with multiple means for contacting and interacting with them. While course-based messaging systems were staples of communication, participants described increasing their accessibility to students by providing them with additional means for contacting them. Some of the ways participants provided additional means for students to contact them was by sharing cellular telephone numbers or by making themselves available via instant messaging clients or TeamSpeak (software that facilitates live audio interaction via the Web). Participants described the use of practices to increase their accessibility to students as having a greater influence than any of the other practices they described to establish presence in the course.

Instructional Design

Another component of motivation that participants identified is the general structure and organization of the course environment. The strong belief in the importance of structuring

content is consistent with existing research that addresses the relationship between teachers' content knowledge and the effective organization and presentation of content to effectively support student learning (Shulman, 1986; Grossman, Wilson, & Shulman, 1989). Participants described how they structured content to ensure its organizational coherence and facilitated the selection of activities and resources that would ultimately scaffold students' progressive movements through it. The importance placed by participants on organization is not surprising, since they all had experience teaching in face-to-face settings. In traditional classroom research, organization is addressed as a necessary part of planning and preparing content to facilitate student engagement (Peterson, Marx, & Clark, 1978) and positively influence their learning (O'Neill, 1999).

The participants also discussed the concept of organization to characterize the instructions and expectations provided for students in course environments. Additionally, the participants talked about providing students with clear, concise instructions, as well as examples of what was expected of students to impact their perceptions of accountability. The practice of clearly communicating instructions and objectives is consistent with face-to-face and postsecondary online research (Anderson, Evertson, & Emmer, 1980; Lee & Hirumi, 2004) that describes the impact it has on students' perceptions of learning and overall satisfaction with courses (Volery, 2001; Weiner, 2003). Participants also addressed how they made enhancements to their courses in order to accommodate the learning styles of their students. By making considerations for students' learning styles, courses, and their content, were made more accessible to students. This practice is consistent with research conducted in face-to-face (Hein & Budny, 1989) and postsecondary online settings (Muir, 2001) that address the importance of using practices that provide students with many ways to interact with and learn the content.

The variations in the goals set by participants across content areas in relation to the integration of Web-based resources to structure students' learning is a unique finding in terms of K-12 virtual school research. While addressed by research exploring the practices of face-to-face and postsecondary online teachers, there is minimal evidence indicating the content based integration of technology in K-12 virtual course settings. In this study English and social studies teachers relied on course tools and communication strategies to facilitate the connections students made with the content. English and social studies teachers also used feedback strategies and interactions with students to help direct the relevance the students saw in the content in relation to their lives. Math and science teachers also used communication and feedback strategies, but relied more on the use of Web-based resources to illustrate the relevance of the content. These resources included Explore eLearning gizmos, Shodor Interactive activities, and other free interactive resources available from the University of Virginia Teacher and Technology Web site. By integrating Web-based resources, math and science teachers were able to offer students opportunities to make their knowledge of content more concrete.

While participants described the motivational element of integrating Web-based resources, they also expressed the direct importance this integration has in relation to supporting students' content learning. Considerations made for the appropriateness of Web-based resources in relation to the content is a core premise established by existing research on classroom-based technology integration (Hughes, 2005; Ferdig, 2006). The content-driven nature of this practice is evidenced by the variations in its implementation based on the value demonstrated for the content area. In addition, the integration of Web-based resources also provides students with multiple opportunities for interacting with the content. In providing these opportunities, virtual school teachers are able to facilitate students' understanding of a complex or abstract concept formation.

Because of the diversity of the students enrolled in their courses and the lack of any information regarding their prior knowledge with the content, by integrating resources, teachers are provided with the opportunities to both support and challenge student learning.

Implications

Implications for Practice

In consideration of the growing interest in virtual schooling and the number of individuals interested in teaching for these institutions, the findings of this study have relevant implications for those preservice and in-service programs established to prepare interested individuals for the teaching experience. As virtual school continues to evolve, so should the content of the programs they administer to prepare individuals for teaching in the virtual course setting. The knowledge gained from the results of this study can both be a valuable asset to the content included in virtual school preservice programs, as well as be a basis for extending in-service teachers' knowledge about the selection of pedagogies and technologies that are appropriately matched to the content and medium of delivery (Russell, 2004).

It is important to acknowledge here that the concept of preservice programs that prepare individuals just entering the field of teaching is an implication for practice. Programs providing preservice teachers that have no experience teaching in any K-12 instructional context are in the beginning stages of development. The knowledge gained from this study about the skills and instructional practices associated with successful teaching in virtual course environments will have particular relevance as these programs continue to evolve. As such, the implications address three sets of skills associated with virtual school teaching: pedagogical skills, technical skills, and interpersonal communication skills.

Pedagogical Skills

The set of implications that relates to the pedagogical skills of virtual school teachers' role brings to the table important curriculum-development considerations for preservice and in-service training programs. Based on the findings related to the pedagogical practices of the virtual school teachers who participated in this study, it appears that the curriculum of preparation programs should focus on providing individuals with the understanding and skills necessary to implement learner-centered practices. The fluid nature of the practices the participants described to help students meet their individual goals was driven by the participants' use of questioning strategies, content knowledge, and knowledge of students' experiences with the content. Using questioning strategies was one example of how participants used an intuitive process to identify gaps in student knowledge. While questioning strategies and practices for understanding gaps in student knowledge are common practice in face-to-face settings, the asynchronous communications and lack of information on students' backgrounds put a greater emphasis on the need to use these practices as an important part of teaching in virtual course environments.

The integration of content knowledge and an understanding of the online learning context also have relevant implications for the curriculum of preservice and in-service training programs. A repetitive theme communicated by participants was the importance of being highly adaptive in how they facilitate students' interactions with content. To support the practices associated with being highly adaptive, the participants had to draw from their extensive content knowledge, and knowledge of the nature of online learning. This understanding leads to the realization that in addition to core skills associated with teaching in the virtual core context, there are also specific skills associated with different content areas. Evidenced by the variation in the practices English, science, social studies, and math teachers described using for integrating resources to support

students' content learning, individuals new to teaching in the virtual course context need to be prepared with new skills for integrating their content and pedagogical knowledge for the Web-based medium.

Additionally, this finding has implications for organizations publishing best-practice documents. Consistent with these documents, the outcomes of this study do reveal a set of core skills and practices used by teachers. However, what is also indicated by the findings of this study is extensive amount of variation and adaptation that occurs as virtual school teachers adopt these skills and practices to make them their own. This consistency between the findings of this study and the best-practices documents currently in publication, serves to reinforce the relevance of the practices identified in both and distinguish the outcomes of this study as an extension of the body of best-practices work.

Another aspect of virtual school teachers' pedagogical skills is the ability to fill the role of an instructional designer. As such, preservice and in-service training programs need to prepare individuals with the ability to draw from their extensive content knowledge to further develop and adapt the initial structure of courses and the content of such. The ability of the participants to modify a courses content and structure utilizes their extensive content knowledge to accommodate the learning styles of students enrolled in the courses. Therefore, this finding has relevant implications for the curriculum of preservice and in-service programs that point to the importance of including both the skills associated with instructional design and the skills used for enhancing initial content in order to support students' learning in the virtual course environment. While instructional design skills do accommodate virtual school teachers' ability to enhance the initial structure of content, technical skill was also required to help ensure the enhancements made were pedagogically sound.

Finally, there are implications of the outcomes related to classroom management that need to be considered in relation to the content of preservice and in-service education programs. Classroom management is an area completely unexplored by existing virtual school research (Waterhouse & Rogers, 2004; Rice, 2006). The considerations introduced by the participants of this study for addressing cheating and the maintenance of the safety of course environments are unique to the virtual teaching experience. Developing a body of knowledge regarding these issues can facilitate the formation of a set of practices that can, at the minimum, provide a basis of understanding and a guide to help virtual school teachers address these situations. Likewise, establishing a basis of understanding for the practices that can be used to deal with these issues can better prepare those individuals seeking to become virtual school teachers.

Technical Skills

If the implication for including instructional design as part of preservice and in-service education curriculum is justified by the need for virtual school teachers to be able to make adaptations and modifications to their courses, then it should be equally important to prepare virtual school teachers with the technical skills for how to make those changes. The participants in this study indicated the importance of knowing about and utilizing various features built into the course environment in order to provide additional structure to students' interactions with the content. Because the virtual course environment is preloaded with the core content, teachers are able to focus on making adaptations to content based on the needs of both the courses and the individual students. The skills associated with virtual school teachers' ability to make enhancements to the course content and adapt the course environment is not currently addressed by any preservice or in-service training programs (Davis & Roblyer, 2005; Davis & Niederhauser, 2007). Therefore, it is important to consider providing new virtual school teachers

adequate knowledge about the tools available in the environment and instructing them as to how these tools can be used to scaffold student learning.

One caveat to this recommendation is the variance in the course management systems used by virtual schools. Not all course management systems consist of the same tools and affordances. What this study touches on by attributing value to the tools built into a course environment is this: There is a need for future research to explore the value of these tools in order to make recommendations to the designers of content management system for the features and abilities that should be included in order to best suit the needs of virtual courses, virtual school teachers, and their students.

A second implication that addresses the technical dimensions associated with virtual school teachers' roles is the importance of making virtual school teachers 'tech-savvy'. This has relevance for preservice and in-service curriculums, not only for providing individuals interested in teaching in these environments with the appropriate skills, but also considering their role in the larger picture of virtual schooling. In preparing individuals with the basic technology skills required to teach a virtual school course implies it is important to not only illustrate to the various technologies available for virtual school teachers to use, but also how to be critical evaluators of those technologies. The approach to integrating these activities is not a one-size-fits-all strategy and demonstrates a teacher's clear understanding of the content and the students in a course. The fact that the participants struggled at times to find quality resources and to develop the skills to critically select those resources that would best fit their courses, coupled with the distinctions in practices, indicates the value of establishing a basic set of criteria to integrate into in-service training programs.

Many are familiarly with the saying, “Give a hungry man a fish and feed him for a day, but teach him how to fish and you feed him for a lifetime.” In considering the role of preparatory programs in the larger picture of virtual schooling, it is important to ask the role these programs are serving. Particularly in the case to preparing future virtual school teachers with technology skills, participants’ statements indicate that they are being ‘given fish’. An important question to ask then is how to inform preparatory programs so that they are able to teach these individuals ‘how to fish’? This question brings to the forefront the lack of a unified framework that can be implemented to address these issues. By considering the structuring of a curriculum around a framework, such as the Technological Pedagogical Content Knowledge (TPCK) Framework, better outcomes may be had in terms of virtual school teacher preparation. This is because frameworks such as TPCK indicate the importance of multiple factors regarding the integration of technology, and runs counter to a one-size-fits-all mentality regarding its use. Therefore, by approaching the design of preservice and in-service programs based on a framework such as TPCK justice can be done to the consideration of technology in relation to the varying the content-based differences associated with the pedagogical practices of virtual school teaching.

Interpersonal Communication Skills

The last set of implications relates to the interaction associated with virtual school teaching and how it is closely tied to the first set of implications regarding pedagogy. The interpersonal skills associated with the role of virtual school teachers’ has implications for their abilities to communicate effectively both with students as well as with other individuals. One such individual is the mentor. The mentor is a new role specifically associated with the virtual school context. These individuals serve as critical points of contact at students’ face-to-face schools. Establishing and maintaining communication with these individuals reflects the utilization of all the support structures underlying students enrolled in virtual courses.

Virtual school teachers need to be familiarized with the roles these individuals serve and opportunities they offer for supporting students. While the exact function of a mentor may vary from school to school, virtual school teachers need to be prepared to engage these individuals and negotiate how they can cooperatively provide students with the best learning experiences. The fact that there is no common understanding for the roles of mentors, an additional implication of this finding is that there is a need to develop training programs for mentors. The participants' descriptions indicate that they had varying experiences with mentors and attributed the quality of support the mentors provided students as closely tied to their understanding of their purposes.

An additional implication for the practices associated with the interpersonal aspects of the participants' roles is the importance placed on forming connections with students. What is evident in the participants' descriptions is the importance of connecting with students; not only for motivating and engaging students in the course content, but also for directing the practices instructors select to teach content topics. Preparing new teachers with the skills necessary for self-monitoring their communications with students may prevent misinterpretations or miscommunications from negatively impacting the experiences of new teachers or their students. Carefully crafted written communications with students to prevent misinterpretations is a critical component for motivating students and fostering their commitment to courses. These self-monitored communications also serve as the basis for forming relationships with students. Another point to be addressed by preparation programs is the value these relationships hold for providing virtual school teachers with the opportunities to gain knowledge about students and the students' experiences with the content. New teachers must be taught the importance of

establishing connections through a variety of communication methods and the related skills to guide their adaptations of content and integrations of resources to support learning.

The final implication associated with the interpersonal dimensions of the participants' roles is based on the finding of this study related to the demonstration and establishment of presence in a virtual school course. Teachers' making themselves accessible is identified as one means for increasing the teachers' abilities to effectively meet students' needs. The participants provided students with multiple means for contacting them and encouraged students to come to them for help to facilitate their successful completion of the courses. Another means for meeting students' needs was by being responsive to students' communications through quick replies to e-mails. Several participants commented about how, often, new teachers do not understand how important it is to reply to students' e-mails quickly because the new teachers do not realize the negative effect that delays in responding to students can have on the students' performances in a course. The preparation programs that individuals new to the experience of teaching in virtual environments go through should address these issues and emphasize those aspects of communication that are distinctly unique to virtual course settings.

Implications for Research

This study approached the exploration of virtual school teaching practices by gaining the perspectives of those most directly involved: the teachers. Explorations into the perspectives of teachers in face-to-face settings demonstrate the value of taking this approach to form an understanding of the pedagogic practices of teachers from each. Research exploring the perspectives of teachers in face-to-face settings proves to be valuable for understanding the roles of teachers' epistemological beliefs in the practices they use to teach (Kagan, 1992; Fang, 1996). Additionally, investigations such as these indicate a further specification of teachers' beliefs in relation to the content area they teach. The epistemological- and content-based beliefs teachers

hold are found to have a direct impact on teachers' abilities to scaffold, structure, and enhance the instructional experience (Shulman, 1999; Kagan, 1992; Prime & Miranda, 2006), as well as to assess student knowledge and learning (Prawat, 1992). Gaining insight into these practices has relevance not only for understanding teacher performance (Blase, 1986), but also for providing guidance on how to prepare preservice teachers with the appropriate skills to enter the field (Clark, 1988; Feiman-Nemser, 2001).

The stated implications of the beliefs, goals, and practices identified in this study begin to give substance to the claim made by Clark (1988) and Feiman-Nemser (2001) in relation to virtual schooling. An aspect previously unexplored by researchers is the perspectives K-12 virtual school teachers have for the practices they use to teach virtual school courses. This study indicates the value of exploring these perspectives to gain insight that can influence preservice and in-service curriculums to prepare individuals for the experience. Additionally, exploring these perspectives can further inform the skills and requirements necessary to support teachers' successful performances in leading virtual school courses. Establishing the value of exploring the perspectives of virtual school teachers indicates the importance of utilizing this strategy in future research in order to delve more thoroughly into the elements of variation in virtual schooling.

While research exploring the perspectives of face-to-face teachers has had a focus on the practices they use to teach, investigations into the perspectives of postsecondary online teachers has provided different knowledge. While the knowledge gained is not related to the instructional practices of postsecondary online teachers, it does lend insight into the obstacles and barriers related to online teaching (Goodyear et al.; Kurtz, Beaudoin, & Sagee, 2004). Some of the most cited obstacles identified through this existing research are: an increased amount of time required to teach an online class, a lack of preexisting knowledge regarding the nature of online learning,

and the challenges the technical nature of the environment in and of itself poses to teachers. Such knowledge is influential for understanding the impact that the general change in context has on individuals in charge of student learning in these environments. As such, research exploring the perspectives postsecondary online teachers have for their practice is a fruitful area that can provide the administration of postsecondary institutions guidance and direction in terms of how they can better support their faculty who teach online.

How research can best inform administrators regarding the support they provide to online teachers is another implication of this study. This study developed a definition of success to facilitate the selection and sampling of virtual school teachers from a single virtual school. While this definition is appropriate for the current state of the field, the conception of success has implications for researchers. It is important to acknowledge that, like evolving nature of virtual schools, so too will conceptions of success change over time. It is important for researchers to utilize this as a means for exploring the complexity of these educational environments. The inherent nature of delivering course content via a Web-based medium implies the need to reconceptualize instructional practices and has been addressed by this study. However, as the medium, content management systems, and digital technologies evolve and progress definitions of what successful teaching is in virtual course contexts will evolve with it. Acknowledging the complexity of virtual schooling and engaging in research that explores the many aspects of its complexity can inform future iterations of success defined within the virtual course context. Approaching research from this way can also help the administrations of K-12 virtual school programs provide their teachers with timely, relevant support that will have a direct impact on the practices virtual school teachers use as well as providing knowledge that can inform the developing body of policy associated with K-12 state led virtual schools.

The final implication this study has for research is related to barriers associated with conducting research in these settings. The majority of K-12 virtual schools exist without a brick-and-mortar building to establish as a home base. Additionally, virtual school teachers can live in varied geographic locations. Sometimes residing in the state the virtual school they work for serves, and sometimes not. The lack of a centralized location and geographic distance between the core individuals associated with a virtual school course such as administrators, teachers, and mentors can present a barrier to researchers interested in exploring the complexity of virtual schooling. The Adobe Connect software was used to address this barrier by providing a platform to conduct interviews with virtual school teachers living in a geographic location over 800 miles away from the researcher. Telecommunication tools such as Adobe Connect extend beyond the forms of Internet based research utilizing E-mails and discussion boards to offer researchers with a greater opportunity to engage in real-time, interaction with a participant. Equally important to consider when establishing the value of telecommunication tools such as Adobe Connect for conducting research is the opportunity they offer for the researcher to implement different types of data collection methods, such as hosting focus groups and conducting observations.

Implications for Policy

The results of this study have implications for developing policy in that they contribute a basis for understanding quality teaching in virtual school environments, which can facilitate the current interest in establishing a certification endorsement specifically for virtual school teachers. Additionally, the outcomes of this study have implications for the lack of research underlying the current best-practice publications in circulation. Collaboration between organizations producing these documents and researchers could be beneficial for establishing a foundation of knowledge to support the practices highlighted in these publications. Forming a collaborative partnership could also serve to expand upon the current focus of the publications on content to include issues

that are identified to be of primary concern by those individuals serving virtual schools in an administrative, instructional, and supportive capacity.

The outcomes of this study have a second general implication for the developing policy associated with virtual schooling. Currently, there are no set standards, qualifications, or certifications for virtual school teachers as there are for teachers in face-to-face settings. Therefore, the skills and competencies identified by this study not only have relevance for the curriculums of preservice and in-service training programs, but also have relevance for the formation of a certification endorsement. Certification endorsements indicate those areas in which a teacher is recognized by the state as an expert. Different certification endorsements are required to teach AP courses, to teach any subject area specialization such as biology and physics, and to be a library media specialist. The state-based nature of teacher certification restricts the geographic locations at which an individual is permitted to teach. However, some states have reciprocity agreements, meaning they accept certification endorsements obtained from other states. The issue of between-state reciprocity draws national attention and thus, makes the relevance of establishing a certification for virtual school teachers even more important. Lacking the need to be in a specific physical locale, certified teachers could then easily teach for virtual schools in other states with which their certifications share reciprocity. This could open the pool of available qualified teachers and help make more virtual course opportunities available to more students.

In addressing issues of certification and state accreditation, it is important to discuss in tangent the criteria used to define success in this study and the implications the criteria have for developing policy. Using the term successful without providing a defined context for its use holds little meaning when trying to categorize the quality of instructional practices a teacher

uses. Therefore, lacking any prior contextual definition of instructional success, a set of criteria was developed to facilitate the identification and recruitment of successful virtual school teachers for this study. These criteria serve to provide indications of quality for virtual school teaching and impact policy in two ways. First, by reinforcing the importance of establishing certifications specifically for teaching in the K-12 virtual course setting. The fact that such criteria could be developed to specifically target a successful population of virtual school teachers clearly indicates the unique requirements needed to teach in virtual settings. Second, these criteria can be used to inform the requirements developed for obtaining a virtual school endorsement or certification. Since certifications are associated with the ability of a teacher to demonstrate quality and expertise in a specific area the criteria associated with identifying successful virtual school teachers in this study can be used as a basis for understanding quality and expertise.

Future Research

There is no common conception of what successful teaching is. However, as new policy and legislation is written that will influence the formation of state-led virtual schools, research is needed that describes the characteristics of quality virtual school teachers (Watson & Kalmon, 2006). This study formed an understanding for virtual school teachers' practices by sampling participants by using a predefined conception of *successful* that related to each individual's education, certification, and teaching experience. In addition to the findings and implications presented in this chapter, there are four venues for future research that should be explored in order to further researchers' existing knowledge and understanding of virtual schooling.

Recommendation for Future Research #1

There are three pedagogical implications this study has for future research in virtual schooling. The first stems from the expressed value by the participants in this study for having knowledge and understanding of theories related to online learning in order to best support

student learning. While the existing theories related to online learning can inform and provide direction for virtual schooling, like the practices associated with this instructional context, perhaps the theory underlying it needs reconsidered in terms of the specific context of virtual school courses. One way to explore the ways current conceptions of online pedagogy may be transformed when considered in terms of the virtual school context is by delving further into the beliefs of virtual school teachers. By implementing a study that focuses on the beliefs of virtual school teachers and the conceptions they have regarding the craft on virtual school teaching, a deeper knowledge of how theories of online learning are adapted or refined to best suit the virtual course setting may be gained.

Another dimension of virtual school pedagogy that should be explored by future research is the content-area beliefs held by the participants in relation to the practices they used. The value of conducting future research in this area is indicated by the distinctions in the way participants used Web-based and course-based tools to cultivate students' knowledge. Knowledge gained from exploring an avenue of future research that specifically focuses on the differences in practices used by teachers from different content areas would benefit preservice and in-service training programs. In addition, this information would add to what is currently known about the types of resources virtual school teachers use in their courses. The relationship among content knowledge, knowledge of students, and selection of Web-based resources indicates the potential for exploring the Technological Pedagogical Content Knowledge (TPCK) framework in a virtual school context. Building off existing research on the relationship between content and pedagogy, the TPCK framework includes technology as an equally important aspect of consideration. Exploring the practices of virtual school teachers could provide further insight into the distinctions in teachers' use of Web-based resources across content areas.

Recommendation for Future Research #2

A second recommendation based on the outcomes of this study is to engage further exploration into the transition the participants described as a result of their roles shifting from a knowledge giver to knowledge guide. Although all participants indicated experiencing this transition to some degree, in the most extreme case, it was articulated in terms of a drastic shift from the perspectives previously held regarding the nature of knowledge and learning. Molly (6.15.07) described the specific shift in her beliefs as directly related to the experiences she had teaching online. Her perspective moved from one that seemed representative of an objectivist view of the mind, where knowledge is externally created, to one that exhibited characteristics of a constructivist view of the mind. This was indicated through the role transition she described, which moved her from being a knowledge giver to being a knowledge guide. This transition impacted the approach she took to teaching both her online and face-to-face classes. It is important for future research to explore cases like this further to determine to origin of this transition.

Recommendation for Future Research #3

There are few online resources available for virtual school teachers to search and find high-quality, relevant Web-based tools to integrate into their classes. The Virtual School Clearinghouse, the Orange Grove, and Merlot are some examples of the Web-based resources currently available for K-12 virtual school teachers to find information about pedagogic or technological innovations. Considering the emphasis placed on the use of Web-based tools by the participants, in combination with their apparent varied use of these tools across content areas, it is important to explore the value of designing resources that meet the specific needs of virtual school teachers. Engaging in such an exploration would also inform the field in terms of the best methods associated with the resources' use and integration into virtual school courses.

The integration of Web-based resources provides many opportunities for students in a virtual course. The motivational and educational value described by the participants indicates the importance of the use of Web-based resources to supplement many of the hands-on opportunities that would be offered in a face-to-face setting. All virtual school courses are delivered online; however, there are currently no criteria to facilitate virtual school teachers' selections of course-based tools and Web-based resources to support student learning in various content areas (Ferdig et al., 2005). As such, the skills underlying the selection of these resources should be addressed in programs preparing individuals for the experience of teaching virtual school courses. Finally, the descriptions provided that indicate the use of these resources to serve content-specific goals indicate the need for future research to explore the use of these resources, as well as their variations of use across content areas.

Participant's also described the importance of utilizing the resources available in the content management systems hosting the courses they taught for supporting student learning. Therefore, in addition to preparing virtual school teachers to effectively select and integrate Web-based resources, virtual school teachers must also be prepared with the knowledge necessary to use the tools and resources available in the course environment. A caveat to this recommendation is the variance in the course management systems used by virtual schools. Not all course management systems consist of the same tools and affordances. What this study touches on by attributing value to the tools built into a course environment is this: There is a need for future research to explore the value of these tools in order to make recommendations to the designers of content management system for the features and abilities that should be included in order to best suit the needs of virtual courses, virtual school teachers, and their students.

Recommendation for Future Research #4

The final category of implications relates to the support structures associated with virtual schooling—specifically, the role of the mentor. The role of the mentor is unique to the virtual school setting and is in need of additional research to form a more consistent understanding and description for it. The mentor has emerged as a new role associated with virtual schooling to compliment and support the instruction provided by virtual school teachers. By working cooperatively with mentors, virtual school teachers are able to further extend the support they can provide students. While there is currently research exploring the mentor’s role, there has yet to be developed a consistent, widely accepted description for it. The field of virtual schooling could benefit from future research that explores the work these individuals do and how virtual school teachers work with these individuals to have successful outcomes with student knowledge.

By defining the role of the mentor better selection and training strategies can be implemented to optimize their collaborative role in the virtual course classroom. As the participants’ described the variations in mentors quality of performance, establishing an orientation course or training program would help mentors gain a better understanding for their role which could result in more consistent performance. Mentor’s performance was also addressed in terms of the quality of content based support provided to students. This was attributed by participants to the reality that the mentor may not be an expert with the content area in which they are trying to supports students development of knowledge. By implementing standards or providing a context to structure the interaction among virtual school teachers and mentors these issues could be addressed and impact the quality of support available to students.

Validity

One threat to the validity of this study emerged in relation to the initial sampling criteria. Although all 16 teachers met the qualification of *successful* as defined by the selection criteria, not all of the sampling categories were filled. Ideally, one virtual school teacher that taught an AP-level course and one that taught a general-level course would have been recruited to represent the content areas of math, English, science, and social studies. However, MDVS currently employs only one AP English teacher. In order to minimize the threat this posed for the reliability of the study, an additional AP science teacher from MDVS was recruited to participate.

Conclusion

Teaching is a unique, customized craft that results from the interaction of teacher, the student, and the content. Hence, it is important to form an understanding regarding how these three elements are involved in the instructional process. Through this study, an understanding of the instructional process was formed through the implementation of a research protocol that focused on the perspectives of teachers. The outcomes of this research reveal knowledge regarding the beliefs, goals, and practices of virtual school teachers, which serve as a basis for understanding the pedagogic practices associated with K-12 virtual school teaching. These categories underlie the instructional practices utilized by virtual school teachers and represent fundamental concepts that are influential to the process of teaching and learning online. The findings of this study have relevant implications for those programs intended to prepare both individuals new to the virtual school teaching experience as well as those already engaged in the practice of virtual course teaching. In this chapter, the presentation of findings demonstrates the value the outcomes have for the field of virtual school teaching. Additionally, the implications of

the findings were also discussed in relation to future research in order to indicate their relevance for developing the growing body of knowledge underlying virtual school teaching.

APPENDIX A
CODING TRAIL

Open	Focused	Selective	Core Category
Adapting course to accommodate pacing	Structure content to scaffold learning	Supporting Student Success	Cultivate Knowledge
Creating an organized environments			
Outlining expectations to foster student responsibility			
Structuring content to focus students			
Using course tools to adapt course structure			
Communicating with mentors	Utilize support structure		
Cooperating with mentors			
Encouraging students to go to each other for support	Meet students needs		
Encouraging students to share resources			
Establishing community			
Provide options for getting Support			
Providing multiple means for contacting			
Structuring content to facilitate student responsibility			
Making themselves accessible			

Increase their accessibility			Cultivate Knowledge (continued)
Communicating w/students to address needs			
Encouraging and helping students establish a routine			
Giving feedback			
Helping Students Achieve their goals			
Using directive communication			
Adapting practices to support students	Individualize Learning	Fluid Practice	
Adaptive Practices			
Communicating to individualize instruction			
Tailoring resources and support for individual students			
Varying use of practices based on student needs			
Answering content based questions	Guide Students Construction of Knowledge		
Being responsive to students			
Connect students & content			
Connecting content to real world of students			
Illustrating the relevance of content for students lives			
Facilitate content related conversations			

Helping students in crisis	Keep the course a safe place	Managing the Course	Cultivate Knowledge (continued)
Managing to support quality vs. reprimanding behavior			
Modeling communication			
Facilitating students' use of constructive communication			
Moderating student discussions			
Utilizing the resources available			
Setting guidelines for communication & interaction			
Aligning course content w/standards	Academic Integrity		
Interact w/ Course Environment			
Maintaining the environment			
Meeting standards			
Posting academic honesty policies			
Individualizing consequences			
Monitoring for cheating			
Being active in all parts of the environment	Effective Communication		
Communicate to motivate			
Communicating emotion			

Communicating to engage students		Connect with Students	Cultivate Knowledge (continued)
Establishing credibility			
Focus on Students vs. Content			
Helping students feel like they have a real teacher			
Sharing information about themselves			
Using clear communication	Preventing miscommunications		
Self-Monitoring Communications			
Being excited about content to engage students	Integrating Technology	Engaging Students with Content	
Getting students excited about content			
Integrating technology to motivate students			
Motivate students to interact w/content			
Motivating students through the structure of content			
Using technology to facilitate learning			
Using technology to illustrate content			
Accommodating Learning styles			
Integrate interactive elements			
Illustrating the concepts embedded in the content			

Alternative assessments	Make Content Accessible	Engaging Students with Content (continued)	Cultivate Knowledge (continued)
Being intuitive to determine students level of understanding			
Content specific strategies			
Effectively assess knowledge			
Encourage exploration of students content related interests			
Enhancing environment to support content			
Expand general content knowledge			
Multiple opportunities to demonstrate knowledge			
Presenting in content in many ways			
Providing many chances to interact w/content			
Selecting resources to enhance content			
Using content knowledge and knowledge of students to select activities			
Using multiple assessment strategies			
Using practices that support the independent nature of online learning			

APPENDIX B
SAMPLEMEMOS

Memo	Coding
<p>6/24 1:00 p.m. (after interview with Elisha, Math)</p> <p>Issues of student ‘ownership’ ... face to face school or VS school.. mentors serve as a mediating force b/t the two – which is why it is imp. to work closely w/them</p> <p>Elisha talked about the following qualities that she feels facilitates her successful experience as a virtual school teacher:</p> <p style="padding-left: 40px;">Responsive with parents & students; interactive with parents & students; intuitive in terms of questioning students; can’t be static Isolation of VS teachers ... need for PD Technology is difficult to select for integration into course Course pacing... difference between using 1 on 1 strategies vs. group.</p>	<p>Cooperating w/mentors</p> <p>Being responsive</p> <p>Adaptive practices</p>
<p>6/28 8:00 p.m. (after interview with Julie, English)</p> <p>Julie, as well as others, have commented on how ‘good teaching is good teaching’ regardless of the medium of delivery. They also acknowledge that these practices must change, or be adapted to best suit the online delivery of their courses. What is unique about the experience of virtual school teaching?</p> <p>The experience of virtual school teaching requires participants to adapt practices based on elements of variability present in VS courses such as: course pacing & instructional level (which is really related to course pacing). In the course pacing example adaptations to the activities included in the course, as well as the structuring of content are made.</p>	<p>Adaptive practices</p> <p>Adapting course to accommodate pacing</p>
<p>6/30 4:30 p.m. (after interview with Nancy, Math)</p> <p>Personalizes course through interactions she has w/students</p> <p>She identified the following practices: Good communication skills; feedback; taking advantage of the opportunity offered by instructional context to shift focus from preparing content to the instructional strategies used; communicating w/mentor; communicating w/students on the phone having no fear with technology – trying & testing out;</p> <p>“Good teaching relates to content & context” How does good teaching relate to content, by drawing from knowledge of content to direct the practices used; importance of connecting content to students world</p>	<p>Adaptive practices</p> <p>Communicating skills Giving Feedback Focus on students Communicating with mentor</p> <p>Connecting content to students world</p>
<p>6/30 8:00 a.m. (after interview with Casey, Science)</p> <p>Presenting content in many different ways to engage students in a way that is most consistent w/their <i>learning style</i> (learning style is a consistent theme indicated by</p>	<p>Present content in many ways</p>

<p>participants as a means for directing the practices they select as well as the technology they integrate.)</p>	<p>Accommodate learning styles</p>
<p>7/3 7 p.m. (after interview with Melanie, Math)</p> <p>Some of the practices addressed were organizations, knowledge of content – particularly in relation to the ability to answer students questions online; well written – specifically in relation to the ability to communicate clearly and using emotion in communications to connect w/students; the need to adapt practices in relation to the pacing of the course, integrating technology to provide resources and additional experiences w/content (attending to learning styles), Introducing content so students see the personal relevance it has for their lives</p>	<p>Answering content questions Clear communication, Communicating emotion Adapting course to accommodate pacing Integrate technology to facilitate learning Connecting content to students world</p>

APPENDIX C
SAMPLE EMAIL TO VIRTUAL SCHOOL TEACHERS

Good afternoon

First, let me say how much I am looking forward to working with you and other MVS teachers. Having been an elementary school teacher and media specialist before coming back to the University of Florida I know how valuable your time is and appreciate your willingness to participate in this study.

The purpose of this study is to explore the best practices of MVS teachers. This inquiry will look at the practices of MVS teacher's in relation to varying content areas and course levels (general or advanced placement). Your participation in the study will involve two conversations with me, the first will be to document your agreement to participate in this study, and will last no longer than 30 minutes. The second conversation will be the interview session, and last no longer than 50 minutes.

Before we begin to think about the interviews I ask that you reply to this message, answering the following questions:

- Do you have a headset and microphone for your computer?
- Are you comfortable using a telecommunication tool, like Elluminate Live or Adobe Connect, to conduct our interviews?

Once I receive your response we'll move forward and schedule a time to conduct the first interview when it is most convenient for you.

Again, thank your interest in participating,
Meredith DiPietro
Doctoral Candidate
Educational Technology, School of Teaching and Learning

APPENDIX D
INTERVIEW PROTOCOL

1. What are the general pedagogical practices you use to teach virtual school courses?
2. Why do you use these practices?
3. Drawing from your experience teaching different courses within your content area, do you use different pedagogical practices based on the content area focus of the course (biology, chemistry, etc)? If so, how do these practices differ?
4. Why do you use different pedagogical practices in relation to the content focus?
5. How do you use different technologies (such as discussion boards, chat tools, wikis, etc.) built into the virtual school course environment to support your pedagogical practice?
6. How do you use technologies not built into your online course environment (such as web based tools & resources) to support your pedagogical practice?
7. What are your values/beliefs regarding virtual school teaching, and the pedagogical practices you implement?

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BIOGRAPHICAL SKETCH

Meredith DiPietro graduated from the School of Teaching and Learning in 2000 with an MEd in Educational Media, after which she served as a Media Specialist for three years at an elementary school in South Florida. In 2003 she returned to Gainesville in pursuit of her doctoral degree. Drawing from her teaching experiences Meredith's focus during her doctoral tenure has been on the exploration of varying technologies and their value for educational environments.

Over the past three years her research and assistantship experiences have focused her research on two primary areas: electronic gaming and virtual school pedagogy. Her work investigating electronic game play draws from her Liberal Arts background in Media Studies, and incorporates theories of psychology to facilitate the investigation of the internal processes associated with utilizing this media. Her experience as a teacher, and pre-service educator, has driven her virtual schooling research, and integrates pedagogic theory in order to explore the unique teaching and learning interaction taking place in the virtual course environment.