

VIRTUAL VOICES: ONLINE TEACHERS' PERCEPTIONS OF ONLINE TEACHING
STANDARDS AND COMPETENCIES

by

Robin Davidson Smith
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Committee:

Priscilla Norton Chair

Kevin Clark

Penelope M. Easley

T. E. E. E. E. Program Director

[Signature] Dean, College of Education
and Human Development

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By

Robin Davidson Smith
Master of Arts
Longwood University, 1990

Director: Priscilla Norton, Professor
Department of Instructional Technology

Spring Semester 2008
George Mason University
Fairfax, VA

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Abstract

VIRTUAL VOICES: ONLINE TEACHERS' PERCEPTIONS OF ONLINE TEACHING STANDARDS AND COMPETENCIES

Robin Davidson Smith, Ph. D.

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Dissertation Director: Dr. Priscilla Norton

This study addressed questions related to online teachers' perceptions of the tasks actually performed in their online teaching practice and the relevance of online teaching standards published in 2006 by the Southern Regional Education Board (SREB) and National Education Association (NEA). There were four research questions:

1. How do online teachers rate the importance of specific existing online teaching standards to their online teaching practice?
2. How do online teachers rate the frequency of use of specific knowledge and skills to their online teaching practice?
3. How do online teachers rate the importance of specific knowledge and skills to their online teaching practice?
4. According to online teachers, what are the most effective ways to prepare and support online teachers?

This mixed methods study consisted of an online survey of 49 online teachers from 4 online schools and interviews with 2 teachers from each school, 1 humanities teacher and 1 math/science, a total of 8 interview participants. The online survey had 3 parts: demographics, including preparation for online teaching; the frequency with which online teachers performed and the importance to their teaching practice of 76 teaching tasks, and the importance of the 2006 SREB and NEA online teaching standards. The 76 tasks were based on the SREB (2006) *Standards for Quality Online Teaching* and the NEA (2006) *Guide to Teaching Online Classes*.

Overall, participants reported both sets of standards as being important, but teachers from all schools found the NEA standards to be of slightly more importance to their online teaching practice. The 76 teaching tasks were separated into five categories: written communication, pedagogy, technology use, course design, and course management. Clearly, teaching roles were not the same for all online teachers in this study. Their responses to the standards and to the frequency and importance of tasks were colored by their individual roles, which varied according to the course model used by their online schools. Participants reported the need for experience as an online learner, specific professional development before online teaching, and ongoing professional development directed at increasing levels of expertise. In addition, participants reported a need for recognition of the validity, complexity, and time-consuming nature of their online teaching as well as equity in pay and benefits.

1. Introduction

I share an office with a colleague who has taught in public high schools for most of her working life. Although she is currently teaching both high school and graduate students in online courses, she laments occasionally that she misses “teaching.” Partly this is recognition that she is pining for the autonomy and drama—both the students’ hormone-driven tragi-comedies and her own teaching “performances”—that she enjoyed while teaching in high school. Partly this is recognition that teaching online is unlike anything she experienced in her face-to-face teaching career. For her, “teaching” is very different from what she now does online even though the goals of the two activities are identical. She perceives face-to-face and online teaching to be two totally different jobs requiring different skill sets—and she is right.

According to the North American Council for Online Learning (NACOL), 1 million American students, kindergarten through high school, are taking online courses; moreover, NACOL predicts that the number of students enrolled in online courses will continue to increase 30% each year (Mehta, 2007). Organizations like Partnership for 21st Century Skills (P21) make it more and more apparent that 21st century students need knowledge, skills, and dispositions that can only be learned in an online environment, so this increase in online schooling is heartening. However, little has been done to prepare teachers to work in this new environment despite the increasing presence of online

learning in American K-12 education. Many online schools require no special training for their online teachers. National education organizations have only recently begun to publish online teaching standards, recognizing that teaching in virtual environments requires special skills and dispositions. The voices of online teachers have been largely mute in this limited discussion about the skills, dispositions, and education that are necessary for effective online teaching. It is critical that the education community recognize and explore the essential differences in online instruction so that we can prepare our teachers to assume these new roles. It is critical that virtual teachers' voices be heard in matters relating to educational policy and teacher preparation.

Background

Changing world and changing learning needs. In *A Whole New Mind*, Daniel H. Pink (2005) offers a view of a changing world that requires new skills. According to Pink, who writes about work, business, and politics for *The New York Times* and *Harvard Business Review* as well as other publications, abundance, Asia, and automation are transforming the world. As examples of how abundance typifies America, he points out that two out of three Americans own their own homes while virtually “everybody who can drive has a car of his own”; we “spend more on trash bags than ninety other countries spend on *everything*” (Pink, p. 33); and storing our extra junk has become a \$17 billion annual industry. This abundance has resulted in a shift in what we prize: beauty, spirituality, and emotion have replaced ownership as goals. Our changing values are reflected in our changing economy. The outsourcing of white-collar jobs to cheaper labor markets in Asia is changing the job market in the U.S. Automation is also changing the

economy. Computers are simply better than humans at most tasks that require “rule-based logic, calculation, and sequential thinking” (Pink, p. 43). This can include writing computer programs, making medical diagnoses, and writing legal documents.

Abundance, Asia, and automation are changing the way our world is configured and the availability of jobs in that new world.

Pink (2005) uses a metaphor of left and right brain functions to demonstrate how the new global economy, driven by abundance, Asia, and automation, makes new demands in the workplace. Four important differences distinguish the two hemispheres:

1. The left hemisphere controls the right side of the body; the right hemisphere controls the left side of the body.
2. The left hemisphere is sequential; the right hemisphere is simultaneous.
3. The left hemisphere specializes in text; the right hemisphere specializes in context.
4. The left hemisphere analyzes the details; the right hemisphere synthesizes the big picture. (pp. 17-22)

Pink admits that we need both halves of our brains, but he notes that we have a tendency to favor one thinking style or the other. Left-brain thinkers favor “sequential, literal, functional, textual, and analytic” reasoning while right-brain thinkers favor holistic, intuitive, “simultaneous, metaphorical, aesthetic, contextual” reasoning (Pink, p. 26).

Pink believes that we need to revamp our attitudes as well as our educational system to produce right-brain thinkers rather than left-brain thinkers if the U.S. is to be competitive

in the new global economy and if we are to sustain the abundance that now characterizes our society.

Thomas L. Friedman (2005) also discusses globalization in the 21st century. He cites 10 developments that have “leveled the economic playing field” between industrial and emerging economies. The collapse of the Berlin Wall ended the Cold War and permitted former Soviet countries to participate in the world’s economy. Netscape made the Internet accessible to a much larger audience. Workflow software enables computers to talk to each other without human involvement. With open sourcing, geographically separated communities can collaborate on projects online. Outsourcing, offshoring, supply chaining, and insourcing permit companies to get work performed wherever it can be done most cheaply and efficiently—and even to share tasks with other companies. What Friedman calls in-forming—the availability of Google and other Internet search engines—has exploded the amount of information available to the average person. Personal digital equipment like cell phones, iPods, instant messaging, voice over IP, and personal digital assistants—what Friedman calls the Steroids—have radically altered the way we work and live. As a result of these “flatteners,” businesses have changed from places where innovation was imposed vertically, from the top down, to places where creation and innovation occur in horizontal collaborations. To succeed in this new, “flat” world, Friedman says that societies, governments, and individuals must adapt—as must education.

American public education was designed to provide workers for an industrial work force and has not retooled itself to deal with the changing needs of the new global

economy. In his written testimony for a hearing of the Senate Committee on Health, Education, Labor and Pensions, Bill Gates, Chairman of Microsoft, stated that “our current expectations for what our students should learn in school were set fifty years ago to meet the needs of an economy based on manufacturing and agriculture. We now have an economy based on knowledge and technology” (Gates, 2007, p. 3). He continued, describing America’s changing learning needs:

Despite the best efforts of many committed educators and administrators, our high schools have simply failed to adapt to this change. As any parent knows, however, our children have not [failed to adapt]—they are fully immersed in digital culture. As a result, while most students enter high school wanting to succeed, too many end up bored, unchallenged, and disengaged from the high school curriculum—‘digital natives’ caught up in an industrial-age learning model. (p. 3)

Microsoft is a member of P21, a collaborative of education, government, and business leaders that Gates said, “seeks to help schools adapt their curricula and classroom environments to align more closely with the skills that students need to succeed in the 21st-century economy, such as communication and problem-solving skills” (Gates, p. 5).

According to NACOL and P21 (2007), “Skills like creativity, problem-solving, communication and analytical thinking are necessary for all levels of success, from entry-level jobs to engineering and technical fields” (p. 2). This is particularly disturbing in today’s educational climate; standards-based assessments usually do not assess—and therefore do not seem to prize—anything beyond content mastery. These same

assessments frequently drive funding and many of the decisions that are made about curricula and programs.

According to the *2005 Skills Gap Report*, which was based on a survey conducted by the National Association of Manufacturers and the Manufacturing Institute's Center for Workforce Success, 84% of American manufacturing employers state that K-12 schools are not preparing students to join the workplace; 51% state that students have serious math and science deficiencies; 38% say students have reading and comprehension deficiencies (Eisen, Jasinowski, & Kleinert, 2005). *Rising above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future* is a Congressional report of policies that could enhance America's science and technology to better prepare us to prosper in a 21st century global market. The report includes two recommendations that relate to this issue and online learning. One is to improve K-12 math and science education and the other is to make innovation a priority. According to the report, up to 20% of fourth and eighth graders cannot perform basic mathematical computations (Committee on Science, Engineering, and Public Policy, 2007). By the time they are seniors, American students score near the bottom of students in industrialized nations in math and science (Gates, 2007, p. 6).

NACOL and P21 (2007) find this trend alarming for three reasons: "U.S. students are falling behind their peers internationally. . . . U.S. innovation is falling. . . . Workplace jobs and skill demands are not being satisfied" (p. 1). P21, which started with eight members in 2002, now has 26 members representing American business, technology, and education organizations. The U.S. Department of Education and the U.S.

Conference of Mayors endorse P21's framework (2004). The governors of Maine, Massachusetts, North Carolina, South Dakota, West Virginia, and Wisconsin have begun statewide 21st century skills initiatives; senators from Maine and West Virginia have also introduced the 21st Century Skills Incentive Fund, which "creates federal matches for public and private state investments in 21st century skills initiatives" (Stansbury, 2007, p. 1). The goal of P21 is "to bring 21st century skills to every child in America by serving as a catalyst for change in teaching, learning, and assessment and as an advocate among education policy makers through a unique partnership among education, business, and government leaders" (P21, 2004. p. 1). To further these goals, P21 developed and publicized a framework of skills in 2004.

In August 2007, P21 published a revised framework, which collapsed the six original domains into four categories that the framework calls 21st century student outcomes that represent "the skills, knowledge and expertise that students should master to succeed in work and life in the 21st century: core subject and 21st century themes; information, media, and technology skills; life, and career skills; and learning and innovation skills. Learning and innovation skills were added to help promote "real-world application of content" (Stansbury, 2007, p. 1). Learning and innovation skills include creativity and innovation, critical thinking and problem solving, and communication and collaboration skills (P21, 2007). The revised framework also "addresses key [concerns] by developing a clear vision for 21st century student outcomes in the new global economy" and "defines how school systems can best support these outcomes" (Stansbury, 2007, p. 1). The revised framework rests on a foundation composed of what

the framework refers to as supports: 21st century standards and assessments, 21st century curriculum and instruction, 21st century professional development, and 21st century learning environments (P21, 2007).

Representative George Miller, chairman of the House Committee on Education and the Workforce, has introduced legislation that offers incentives for developing rigorous standards that reflect 21st century skills (“Will New *NCLB*,” 2007). His bill, which focuses on recruiting, preparing, distributing, and retaining public elementary and secondary school teachers and principals, has been referred to the Subcommittee on Higher Education, Lifelong Learning, and Competitiveness (United States House of Representatives, 2007).

These changing, new learning needs and 21st century literacies require new alternatives for schooling as well as new skills and new environments for both working and learning. Schools must enact changes that will prepare students for the future: these students will change jobs repeatedly and must be lifelong learners who can “retool” themselves as needed. Virtual schools are “one of the most important advancements in attempting to rethink the effectiveness of education in the United States” (NACOL & P21, 2007, p. 2) because they provide “access to online, collaborative and self-paced learning environments—settings that can facilitate 21st century skills” (NACOL & P21, p. 2). Situating the development of these skills in online courses is particularly useful since today’s “students must be able to combine these skills with the effective use of technology to succeed in current and future jobs” (NACOL & P21, p. 2).

In *Growing up Digital* (1998), Tapscott discusses the ways in which the Net Generation brings different ideas of work, reward, responsibility, and collaboration to the workforce and school. Tapscott also reminds us of increasing student enrollments and looming teacher retirements, factors that will push public schools even deeper into what he refers to as “the crisis in education.” He is hopeful that this crisis may push us into abandoning the old traditional broadcast approach to education that “is ill-suited to the intellectual, social, motivation, and emotional needs of the new generation” (Tapscott, p. 131) and into adopting an interactive approach to learning. He proposes that we shift from linear to hypermedia learning, from instruction to construction and discovery, from teacher-centered to learner-centered education, from absorbing material to learning how to navigate and how to learn, from school to lifelong learning, from one-size-fits-all to customized learning, from learning as torture to learning as fun, and from the teacher as transmitter to the teacher as facilitator.

Marc Prensky (2006) agrees. In Prensky’s discussion of the role of computer games in the development of what he calls “Digital Natives,” he points out the many ways that Digital Natives differ from their “Digital Immigrant” parents: They communicate, share, buy and sell, exchange, create, meet, coordinate, evaluate, game, learn, evolve, search, analyze, report, program, socialize, and grow up differently. He believes that in order to effectively educate Digital Natives, we must recognize their distinctive skills and interests. Prensky’s main point is that computer games, when used with personal communication equipment, “offer up the most realistic vision of how everyone, young and old, will be learning and working in the decades to come” (p. 51);

nevertheless, schools expend enormous time and effort attempting to keep games and cell phones out of schools rather than harnessing their power as learning tools.

King and O'Brien (2002) fear that a school bias against digital technology and in favor of print may devalue students' multi-modal literacies: Adolescents "are the likely beneficiaries of a new world of information. At the same time, schools, rooted in a tradition that privileges print, may devalue or even prohibit the use of their students' newfound expertise with language and literacy of information technologies" (p. 40). Paul Gilster (1997) sees the digital world as promising new hope: "It's just possible that extended and highly developed virtual environments may offer us clues as we attempt to master the critical issues of living together in a physical world that is running out of resources and facing shortages" (p. 229).

As resistant as education has traditionally been to change, perhaps online learning—which is currently outside of the regulations that bound our public schools—is an alternative that can play an important role in accommodating these changing literacies and learning needs and in engaging Digital Natives. As the NEA (2006) notes, perhaps online learning offers us the chance to "get it right from the start"—to formulate an educational system that reflects research and best practices from the start.

Online learning and virtual high schools. Distance education, which was originally defined as a geographically separated student and teacher using some sort of technology to facilitate the student's learning, has been around since the mid-19th century. Distance learning has traditionally represented a small part of K-12 schooling and has never been regulated. Distance education in the U.S.—like face-to-face

education—has employed every technology from books to radio, film, television, and computers. More recently, the term “distributed learning” has been used to refer to distance learning characterized by a learner-centered philosophy and the use of interactive technologies. Online learning, also called e-learning or virtual learning, is one type of distance learning delivered primarily using the Internet and communication technologies and can be synchronous or asynchronous. As Maeroff (2003) puts it, students are more in control of their own learning in a virtual environment that has removed the barriers and constraints of time and space. Online learning has already become “an essential delivery system” for business training. Distributed learning, including online learning alone as well as hybrid or blended courses with partial multimedia and/or face-to-face elements, is used by 77% of corporations, an increase of 73% in nine years (NACOL & P21, 2007).

Online learning promises to be more ubiquitous than earlier forms of distance learning. Online learning can be—offers most promise when it is—very different from traditional classroom and distance schooling, which has many elements of traditional face-to-face instruction. Online schools are inherently more open to innovative practices. While it is difficult to make changes in traditional educational organizations and structures, online education appears to be more adaptable to change because its practices are not entrenched and it does not suffer the limitations of a physical setting.

K-12 online learning is a new and emerging field, and the virtual high school movement is part of this trend toward online learning. In 2002, the Peak Group reported that the largest public and private virtual schools have a combined operating budget of

over \$52 million and anticipated annual student enrollment of over 1,000,000 by the 2004-2005 school year. In 2002—six years ago (which is the remote past in this new form of learning), 36% of all school districts in the U.S. already had students enrolled in online courses. A nationwide survey of U.S. school district administrators during the 2005-2006 school year finds that almost two-thirds of responding public school districts offer online courses: 63.1% had one or more students enrolled in a fully online or blended course; 57.9% had one or more students enrolled in a fully online course; 32.4% had one or more students enrolled in a blended course (Picciano & Seaman, 2007). According to the same report, 60% of administrators in districts with online learning expected enrollments to grow, online enrollments by 19% and blended enrollments by 23% in the next two years. The overall number of students K-12 engaged in online learning 2005-2006 was an estimated 700,000 (Picciano & Seaman).

Virtual schools are growing “at an annual rate of about 25 percent. Estimates of elementary and secondary students taking virtual classes range from 500,000 to 1 million nationally, compared with total public school enrollment of about 50 million” (“Florida Leads,” 2007, p. 1). Mehta (2007) reports that 24 states actually operate their own online schools while, according to NACOL, there are “now 25 statewide or state-led programs and more than 170 virtual charter schools across the nation” (“Florida Leads,” p. 1). Collecting statistics about virtual schools is difficult; schools, teachers, and students are ephemeral, crossing geographic and political boundaries, often unregulated and, therefore, undocumented.

Rosenhall (2006) writes, “An estimated 600,000 K-12 students nationwide took classes online last year – the vast majority of them high schoolers” (p. 1). If we accept Rosenhall’s estimate of the number of students enrolled in online classes, which represented just over 1% of the nation’s student body in 2005, NACOL’s report is still startling: online learning is growing “an estimated 30% annually in K-12 education” (Powell, & Patrick, 2006, p. 3). Assuming we had 600,000 online students in 2005, we can extrapolate to 780,000 in 2006; 1,014,000 in 2007; 1,318,200 in 2008; 1,713,660 in 2009; 2,227,758 in 2010; and 2,896,085 in 2011! In 2006, Michigan even passed legislation requiring that its high school students participate in at least one online learning experience to graduate from a public high school beginning with the class of 2011 (cited in “Michigan First,” 2006). Will other states follow?

Different online schools use different models. Some virtual high schools simply upload texts, syllabi, and other course materials onto a course management system like BlackBoard or WebCT; the primary role of online teachers—sometimes called graders—is to evaluate summative student work (Stars Suite, 2007). At the opposite extreme are online schools like Virtual High School, Inc. (VHS) and The Online Academy (TOA). VHS, the largest online course provider in the nation, has extensive required training for all online teachers and courses that are problem-based and interactive (Virtual High School, 2008). TOA, another virtual high school that does not fit the usual mold, is designed around authentic problems, situated learning, and a community of practice model in which teachers guide students through the learning experience by demonstrating expertise, building relationships, developing conceptual understanding, and supporting

students in becoming self-regulated learners with a sense of their own self-efficacy (Norton, 2003). TOA teachers are required to take graduate courses in online teaching. Like VHS, TOA has some teachers who are also course designers. Because of rapid changes in technology, ballooning enrollments, and lack of oversight, some online schools may function without the basic support and policies employed by VHS and TOA.

Online teaching standards. As this alternative to traditional education becomes a familiar part of the educational landscape, its success depends on the preparation of teachers able to teach effectively in this new environment. “The most important factor affecting student learning is the teacher” (SREB, 2006b, p. 2), and this is as true of virtual environments as it is of the face-to-face classroom. Both traditional classroom teachers and online teachers need to know their subjects and how to teach them. They also must understand their students, remain current in their fields, and manage and monitor student progress (SREB, 2006b). High quality online teaching starts with high quality teachers in general. If teachers are not effective in a traditional classroom, they are not likely to be effective online either. Yet, there is growing recognition that online teaching requires special skills and considerations. “There are aspects of online teaching that are dramatically different than conventional classrooms. You could be a great physics teacher, but a horrible online physics teacher, if you aren’t able to manage your time or your students very well” (Appel, 2006, p. 1).

The first U. S. standards specifically for online instructors were published by the American Federation of Teachers (AFT) Higher Education Program and Policy Council in 2000; however, these standards were not designed for K-12 online teachers. The

International Board of Standards for Training, Performance, and Instruction (IBSTPI) published competencies for instructional design in 2000 and competencies for teaching in face-to-face, online, and blended settings in 2004. These standards were created for training in business settings, not K-12 schools. The International Society for Technology in Education (ISTE) had developed technology standards for students, teachers, and administrators by 2000, but these do not refer specifically to online learning. Not until the fall of 2006 did education organizations publish formal teaching standards for K-12 online teachers. In August 2006, the Southern Regional Education Board (SREB) produced *Standards for Quality Online Teaching*. In November 2006, the National Education Association (NEA) published the *NEA Guide to Teaching Online*. More recently, the SREB standards—with some additions, changes, and deletions, have been endorsed by NACOL (2008, February) as being comprehensive set of criteria for online teachers. These various sets of standards are not widely known—even among online teachers; are not consistent in the knowledge, skills and dispositions they emphasize; and to date have had little effect on teacher preparation or teacher education.

Teacher preparation. In its 2004 *National Education Technology Plan*, the U.S. Department of Education set as one of its action goals the support of e-learning and virtual schools and stated that one strategy within this goal is to “enable every teacher to participate in e-learning training” (2005, pp. 41-42). This policy of providing e-training has not been translated into action. Currently, few online high schools report requiring online education for their teachers, and there are few online education programs available in the U.S. (Smith, Clark, & Blomeyer, 2005). We need to know more about the skills

and dispositions that online teachers find necessary for effective teaching in an online environment, how they learned to implement those practices, and what practices should inform the education of teachers who may work in an online environment.

Statement of Problem

Online schools are no longer fringe elements that the educational mainstream can afford to ignore; they promise to be a permanent part of the educational landscape. Most students in teacher preparation programs right now will teach online classes. Most students will take online classes before they graduate from high school. Once they enter the work force, virtually all employees will take online training courses. In addition, online learning provides opportunities for developing the new literacies and competencies demanded for success in the 21st century. However, online learning and online teaching require skills that are not needed or acquired in most face-to-face learning and teaching environments, and the “86,000 new teachers who enter the profession each year begin without online teaching skills in their professional repertoire” (NEA, 2006, p. 3). Therefore, it is imperative that both teachers and students be prepared specifically to work in virtual environments.

While we have begun to understand that online teaching requires special skills, considerations, and attitudes, the preparation of online teachers has been the topic of limited research (Blomeyer, 2006). The success of this new alternative to traditional education depends on the preparation of teachers able to teach effectively in this new environment. Yet, we know little about how to prepare teachers for this new environment; few programs exist to prepare teachers to work in online classrooms; and

there are fewer policies in place to regulate the licensure of online teachers. Therefore, the problem is confirming the knowledge and skills needed for effective online teaching and what standards and guides would be most helpful in preparing for online teaching—according to experienced online teachers.

Research Questions

The purpose of this study is to explore experienced online teachers' perspectives of national standards for online teaching; how frequently online teachers actually employ specific knowledge, skills, and dispositions; how important those knowledge, skills, and dispositions are; and how to prepare and support online teachers. This can be broken down into more specific questions:

1. How do online teachers rate the importance of specific existing online teaching standards to their online teaching practice?
2. How do online teachers rate the frequency of use of specific knowledge and skills to their online teaching practice?
3. How do online teachers rate the importance of specific knowledge and skills to their online teaching practice?
4. According to online teachers, what are the most effective ways to prepare and support online teachers?

Theoretical Framework

There are three theoretical assumptions that inform this work. All online instruction should be designed around situated cognition, problem-based learning, authentic assessment, self-regulation, self-efficacy, and 21st century learning and skills.

Today's "Digital Natives" regularly use technology for social networking/productivity, mass collaboration, innovation, and creation. Online teachers are situated to make informed decisions about the knowledge, skills, and dispositions needed for online teaching.

Significance of Study

Online teaching is an emerging field, and institutions are struggling to figure out how to prepare teachers to work in this new environment. A study of the skills, dispositions, and knowledge practicing online teachers perceive to be necessary for effective teaching in online environments will inform critical issues facing education in 21st century America that are beyond the scope of this study: What preparation should online teachers receive? Should the preparation be delivered online? Should preparation for online teaching be required in all teacher preparation programs? What are the implications for teacher credentialing and the accreditation of teacher education programs? What are the implications for the regulation of online secondary schools?

Scope of Study

This was a mixed methods study. First, I researched four online secondary online schools operated by Virginia entities that were selected for this study and examined all available documentation. Then, I contacted directors of the four schools to secure permission to invite their online teachers to participate in the online survey and to ask questions as necessary to get a clearer picture of each school.

I created a list of 76 teaching tasks based on the SREB (2006b) *Standards for Quality Online Teaching* and the NEA (2006) *Guide to Teaching Online Classes*. The

tasks include observable behaviors that correlate with the skills, competencies, and indicators that SREB and NEA used to “flesh out” their standards and guidelines. A group of seven educators with experience in virtual high schools, teacher preparation, and online learning evaluated these tasks as to their usefulness, accuracy, representativeness, and relevance to online teaching.

The expert panel consisted of seven experienced online teachers, five secondary and two post-secondary. All of the five online secondary teachers have credentials in Virginia for the subjects they teach online, two in mathematics, one in social studies, one in science, and one in English. Three have had 6-10 years of classroom experience; two have had between 11-20 years of classroom experience. The two post secondary members teach face-to-face and online graduate courses in integrating technology into instruction. All have been teaching online courses for at least four years, and all have had online course design experience. The expert panel of seven online educators made suggestions for revisions, additions, and changes in both the competencies and the actual survey.

The list of teaching tasks was used to create an online survey administered to online teachers from four online high schools ($n = 49$). To discover precisely what tasks online teachers perform, teachers were asked to indicate two things about each task: how frequently they perform the task in their online practice and how important the task is to their online teaching practice. Zemke and Kramliner (1985) and McCormick (1976) (cited in Darabi, Sikorski, & Harvey, 2006) recommend that a task analysis should include having practitioners rate the importance of tasks to the position, the frequency of

task performance, and relative time spent on the task by the practitioner. I eliminated the relative time spent on the task both to keep the survey a manageable length and because it is outside the direct interest of this study. For frequency this study used a 4-point verbal frequency scale: (1) Never, (2) Rarely, (3) Often, and (4) Constantly. For importance, this study used a 6-point semantic differential scale ranging from (1) Extremely Unimportant to (6) Extremely Important. There were 23 closed questions about the importance of specific NEA and SREB standards using the same six point semantic differential scale as well as three open-ended questions about the standards, successful online teaching, and support and education for online teachers. Finally, I conducted personal interviews with two teachers from each of the four online schools, using open-ended questions. I used qualitative methods to code and to identify themes in the open-ended responses and the interviews and compared the quantitative and qualitative data for triangulation.

Definitions

Asynchronous communication: can occur at any time at the convenience of the learner

Blended: delivery that includes both face-to-face and online elements; see *hybrid*

Brick-and-mortar school: “an educational organization that enrolls students primarily in classroom-based courses located in a school facility” (Hassel & Terrell, n. d., p. 11)

Competency: “a related set of knowledge, skills, and attitudes that enable a person to effectively perform the activities of a given occupation or function in such a way that meets or exceeds the standards expected in a particular profession or work setting” (Spector & de la Teja, 2001, p. 121)

Course management system (CMS): “software [such as Blackboard or Moodle] for the creation and editing of course content, communication tools, assessment tools, and other features designed to enhance access and ease of use” (NACOL & P21, 2007); software that “provides structure for course content and related tools such as discussion boards, calendar syllabus and the grade book” (Davis & Rose, 2007); also called learning management system (LMS)

Cyber schools: “publicly funded, fully online schools that students ‘attend’ on a full-time basis”; students “learn primarily from home and at a personalized pace, usually with some guidance from parents” (Tucker, 2007, p. 9)

Distance education: education in which the teacher and student are separated geographically and which uses some technology (including books) for learning

Distributed learning: learning that is learner-centered and uses interactive technologies

e-Learning: learning that takes place primarily using digital or information and communication technologies; online learning is one type of e-learning; see *online learning* and *virtual learning*

Hybrid: delivery that includes both face-to-face and online elements, with 30 – 79% delivered online; see *blended*

Information and communication technology (ICT): use of electronic technology in education, business, government or daily life (Smith, Clark, & Blomeyer, 2005, p. 5).

Mentor: teacher who works one-on-one with a student as coach, model, facilitator, or monitor rather than as the more traditional lecturer and evaluator; this may be on site or online

Online learning: learning that takes place primarily using the Internet, with 80% or more delivered online; one form of distance education; see *e-Learning* and *virtual learning*

Online teacher: professional educator who communicates with and teaches students using the Internet and communication technologies

Seat time: “actual physical presence of a student in a brick-and-mortar school setting, often used for attendance and funding” (Watson & Ryan, 2007, p. 146)

Standards: “statements of expectations of performance or levels of knowledge in a specific content domain or job role” (Spector & de la Teja, 2001, p. 129)

Supplemental online program: online program that “offers courses or other learning opportunities to students who are otherwise enrolled in physical schools (or cyberschools); credit for successful completion of these learning opportunities is awarded by the school in which each student is enrolled” (Watson, 2007, p. 33)

Synchronous communication: communication that occurs live, in real time, using tools such as video-conferencing and chat

Task: “a definite piece of work assigned or falling to a person” (Barnhart, 1970, p. 1240)

Virtual classrooms: includes course and resources delivered primarily through the Internet and communication technologies as well as student-instructor interaction and extensive student-student interaction

Virtual learning: learning that takes place primarily using the Internet and communication technologies; see *e-Learning* and *online learning*

Virtual school: a school with no physical presence that registers and educates students using the Internet and communication technologies

2. Review of Literature

This review of literature covers an array of topics that inform the research questions around which this study is based: teachers' perceptions of the importance of existing online teaching standards, the frequency with which they employ specific knowledge and skills in their online teaching practice, the importance of specific knowledge and skills in their online teaching practice, and the preparation needed for online teaching. To establish the context within which online teachers work, the review begins with the current state of K-12 online learning, including online students and schools as well as regulation, funding, and policy issues. The second major section identifies online teachers and discusses their preparation for online teaching. The final part, a discussion of recently published standards for online teaching, relates current attitudes about the necessary knowledge, skills, and dispositions required by online teachers.

Introduction

A completely new class of public schools—'virtual' schools using the Internet to create online classrooms—is "bringing about reforms that have long eluded traditional public schools" (Tucker, 2007, p. 1). These virtual schools are perceived as models of new ways to approach concerns like funding and staffing and "as a strategy for achieving education reform" (Smith, Clark, & Blomeyer, 2005, p. 8). Because these "innovative reforms can be readily integrated into the public school system," it is "increasingly

important to understand both the innovations that are emerging from online schooling and their potential to leverage reform on a far larger scale in public education” (Tucker, p. 1).

While there is controversy over “fitting this new model of learning into existing policies created for physical schools. . .and redefining the preconceived notions of some educators, policymakers, and legislators” (Watson, 2007, p. 2), organizations like Southern Regional Education Board (SREB), North American Council for Online Learning (NACOL), Partnership for 21st Century Skills (P21), and International Society for Technology in Education (ISTE) see online learning as a template for educational reform. Watson summarizes this position:

Online education represents a critically important response to the shortcomings of K-12 education and the need for reform. With the United States economy shifting away from manufacturing and towards a greater percentage of knowledge-based jobs, 90% of the fastest growing jobs in the economy require a college degree. At the same time, according to one estimate, just 70% of all students in public high schools graduate, and only 32% of all students leave high school qualified to attend four-year colleges. In addition to helping address these shortcomings, online education also can facilitate mastery of essential 21st century skills by stressing self-directed learning, time management, and personal responsibility along with technology literacy in a context of problem solving and global awareness. (p. 3)

The 2005 National Education Technology Plan, which expresses a “national vision for technology in which virtual schools and e-learning are seen as a strategy for

attaining key educational goals” (Smith et al., 2005, p. 9), makes five recommendations: “provide every student access to e-learning; enable every teacher to participate in e-learning training; encourage the use of e-learning options to meet *NCLB* requirements. . . ; explore creative ways to fund e-learning opportunities; develop quality measures and accreditation standards” (Smith et al., p. 9). Secretary of Education Spellings recognized that “advances in technology provide an opportunity to personalize education, use time more efficiently, and tailor instruction in innovative ways. Online course work enables students to attend class inside or outside of school, learn concepts at their own pace, and receive extra help or more challenging assignments” (U. S. Department of Education, 2007, p. v). Audio and video software have changed the way people collect and consume music and movies—and have changed the retail music industry; “virtual school is driving the same sorts of transforming changes in public education. . .personalizing student learning and extending it beyond the traditional school day” (Tucker, 2007, p. 1).

Simply changing policies and purchasing technology is not the answer; however, Wallace’s (2004) analysis of studies by Becker and Ravitz (1999), Feldman, Konold, and Coulter (2000), and Schofield and Davidson (2002) “illustrate[s] that teaching with the Internet is a complex endeavor that varies widely in implementation and impact. Evidence presented here and in other studies shows that the Internet is far from uniform in its impact on schools and teachers” (Wallace, p. 453). The Internet, which uses “enormous resources, financial and human, in schools across the country,” is not just a “neutral tool” (Wallace, p. 469). The Internet—as well as other digital technologies—is “good or bad, useful or useless, depending not only on its implementation but also on

one's perspective about the purposes and goals of education and how technology might contribute to those goals” (Wallace, p. 470). Meanwhile, policymakers, administrators, and parents have, essentially, demanded that teachers use the Internet, providing “a source of pressure and frustration for many teachers and of excitement for others” (Wallace, p. 484). Teachers using the Internet sometimes uncover dilemmas that are “present in all teaching but that remain controlled or obscured by traditional texts and practices” (Wallace, p. 484), and they must become curriculum designers with none of the traditional disciplinary and pedagogical support from texts and guides. “They may find themselves thrust into the role of novices, even though they have years of experience, as they and their students encounter new and unfamiliar content in a virtual setting” (Wallace, p. 485).

Teachers who are excited by technology to the extent that they become online instructors may discover that the experience changes them in unexpected, positive ways. According to a study of online professors at the New Jersey Institute of Technology by Coppola, Hiltz, and Rotter (2001), instructor roles changed in asynchronous online courses: “The cognitive role, which relates to mental processes of learning, information storage, and thinking, shifts to one of deeper cognitive complexity” (p. 1). Faculty reported a change in their teaching persona: more precision in their presentation of materials and instructions and a shift to a more Socratic pedagogy, “typified by a give and take between instructor and students with questions leading to learning” (Coppola et al., p. 8). Instructors also reported becoming more reflective and deliberate, “engaging in a deeper level of mental processing as they edited both questions and responses to

questions” (Coppola et al., p. 5). Moreover, “their learning relationships with online students were typically more intimate and connected than in face-to-face classes” even though they described themselves as behaving more formally and less humorously (Coppola et al., p. 6). This new venue for teaching may provide teachers with a place to experience integrating pedagogy and practice in an environment that is free of the baggage of old habits.

In a research study considering online teachers as education reform agents, Lowes (2005) used a survey and interviews to explore the perceptions of instructors in Virtual High School, Inc. (VHS). Forty-six percent of the 464 instructors who were invited responded. All respondents had completed training; some had taken advanced training and had developed new courses while others had merely adapted an existing course. All teachers were familiar with “authentic assessment, problem-based learning, use of rubrics in assessment, and cooperative learning” (Smith et al., 2005, p. 26). A majority of teachers (74%) reported that “teaching online had a positive impact on their face-to-face teaching” (Smith et al., p. 27), specifically by increasing student participation and independent learning opportunities as well as by improving their questioning strategies and use of metacognition and reflection.

This research was done with courses that have a set start and stop date and include considerable student-student interaction in a virtual classroom; interaction is missing in courses that are self-paced, so teachers’ experiences may be quite different from those who teach in “any time any place” courses (Smith et al., 2005, p. 28). Teachers who had developed online courses were more likely to be “major changers” than teachers who had

simply adapted an existing course. This raises the issue of whether this difference was caused by the additional course work in design or by the act of original design. It is possible that the changes attributed to the professional development and online teaching experiences may be a function of the “personal characteristics attracted to online instruction” (Smith et al., p. 29).

Teachers in virtual environments may get better support in their new roles than teachers in more traditional environments. For instance, new teachers in the VHS are coached and mentored during their first semester; the mentor and curriculum coordinator decide if a teacher needs to be “retained in coaching” for the second semester. In 2001-2007, the number of teachers who were retained in coaching has varied between 12 and 17% (U. S. Department of Education, 2007). Granted, every online school has its own model for professional development and support, but the transparency of online teaching lends itself to observation and evaluation—and administrators are alert to the fact that online teaching failures can be spectacular. If online learning can permit teachers to approach teaching tasks with an open mind and will encourage systems to provide better support for struggling teachers, it may just meet its promise as a vehicle for educational reform.

Students and parents are beginning to realize that “a new kind of student requires a new kind of schooling” as the “disconnect between many current educational methods and those possible in an information-connected environment. . .[becomes] increasingly obvious” (Davis & Roblyer, 2005, p. 400). Part of the demand for online schools is fueled by “fundamental changes in our society and the students who inhabit it. As

ubiquitous communications and immediate access to information have become more common, learners recognize that learning can be an anytime-anywhere experience. They want educational opportunities that reflect these characteristics” (Davis & Roblyer, p. 400).

Online schools can provide anytime-anywhere access and can help produce 21st century outcomes for schools, giving students access to and practice in a mode of learning that is innovative and increasingly important in the workplace. Because reports from industry indicate that distributed learning demands a 60% faster learning curve, students deserve the opportunity to learn to function in this environment before their livelihoods rest on their online learning success. Virtual schools provide the opportunity to intentionally teach and measure self-directed learning as well as other 21st century skills such as global awareness, information and communications technology literacy, problem solving skills, time management and personal responsibility. Online schools typically rely on competency-based learning models that require students to demonstrate knowledge and skills rather than seat time; instruction is frequently problem-based and uses teams (NACOL & P21, 2007), providing further connections between school and the world of work.

Current State of K-12 Online Learning

Online Students

The number of online schools is increasing rapidly as is the number of students enrolled in online classes. In the 2005-2006 school year, 700,000 students—mostly high school students—took virtual courses. “Although that is only a fraction of the nation’s 48

million elementary and secondary students, it is almost double the estimate of students taking online learning courses just three years earlier, and it's a number that is likely to continue to rise rapidly" (Tucker, 2007, p. 1). Susan Patrick, president of NACOL, estimates that about 100,00 take online courses during the summer ("Online Classes," 2007). Moreover, most online programs report "considerable growth in the number of students they are serving": 40% report at least 25% annual growth—with half of those reporting growth at 50% or more (Watson & Ryan, 2007, p. 10).

The 16 SREB states had 200,000 students enrolled in the 2006-2007 school year, an increase of at least 25% (SREB Educational Technology Cooperative [SREB ETC], 2007). 2005 data from state virtual schools "suggested most K-12 learners are in high school, more females than males enroll, and a growing portion of enrollments are by minorities and students attending less affluent schools" (Smith et al., 2005, p. 72). The fact that by late 2004, 80% of households had Internet access (Richardson, 2006, p. 47) may account for the increase in enrollment by less affluent students attending less affluent schools. Whatever the causes of this increase, it demonstrates that online schools are beginning to address a problem identified by Patrick: "For too long, high quality education has been too closely tied to the student's zip code" (Watson, 2007, p. v).

Advocates of online schools state that online learning is "a better fit for students who, for a variety of reasons, don't fit the mold at bricks-and-mortar schools. Students with physical handicaps that impair mobility, teen moms, professional athletes, gifted students and struggling students are among those who make up the student body" (Bauer, 2007, p. 1). Henke (2006) summarizes the findings of a national survey: "One in five

students in grades 6-12 have taken an online or distance learning course at school or on their own, and one in three students selected online classes as a component of their ideal school” (p. 2). In addition, Henke reports that some students are not interested in online courses; 29-30 percent of students had not taken online courses and were not interested in doing so. Thirty-nine percent of high school students included the option to take online classes as part of their ideal school. Students in grades 9-12 gave these top two reasons for taking online courses: *courses not offered at school* (47%) and *work on own pace* (43%).

Based on five meta-analyses (Waxman, Connell, and Gray, 2002) of the effects of technology on academic performance in grades K-12, most students seem to perform equally well or better academically in online learning (cited in Smith et al.). They found “positive effect sizes for cognitive outcomes (.448) and affective outcomes (.464) such as satisfaction or motivation, but a negative effect size in 3 studies for behavioral outcomes (-.091) such as persistence in learning tasks” (Smith et al., p. 16). Since students’ negative opinions of online courses may contribute to higher drop out rates (Carr, 2000), low motivation to learn (Maltby & Whittle, 2000), and lower student satisfaction with the learning experience (Kenny, 2003), it is important to understand student perceptions of barriers to online learning (cited in Muilenburg & Berge, 2005).

Online Schools

According to the U. S. Dept. of Education as reported in *eSchool News*, about 6,000 school districts—about one-third of the school divisions in the country—grant credit for online classes (“Online Classes,” 2007). As of September 2007, “42 states have

significant supplemental online learning programs in which students enrolled in physical schools take one or two courses online” or “significant full time programs” or both (Davis & Rose, 2007, p. 4). Thirty of these programs are state-led (Watson & Ryan, 2007). Only eight states have neither, but several of those have set up task forces to explore online learning.

Missouri, North Carolina, South Carolina, and South Dakota “became the latest of the two dozen states to establish state-run virtual high school programs” (Tucker, 2007, p. 1) in 2006-2007. Months before it opened for the 2007-2008 school year, most of the free seats in Missouri’s new state virtual school had been filled by the 2,500 students already enrolled (“Virtual School,” 2007). Two-thirds of the students were in high school, and 27% intend to attend the state online school full time In Michigan, the legislature has gone “a step further with a mandate requiring students to complete an online learning experience to graduate from high school” (Tucker, p. 1).

While the Center for Education Reform reported 173 virtual charter schools serving 92,235 students as of January 2007, the majority of online students fill in gaps in their home school’s offerings by taking supplemental courses offered by school districts, universities, consortia, or state departments of education (Tucker, 2007). Schools use online courses “for credit recovery, to accommodate busy student schedules, to provide more opportunities for Advanced Placement (AP) courses, to offer students more choice, and to share highly qualified teachers” (Henke, 2006, p. 3). Students in rural areas are more likely to take courses that are not offered locally or to work at their own pace and most often expressed interest in math and foreign language courses. Urban and suburban

students are more likely to take a class to get extra help. Urban students expressed most interest in vocational classes. Suburban students also want online courses to accommodate their busy schedules and were primarily interested in college preparatory classes (Henke). Timothy Magner, director of educational technology for the U. S. Department of Education, stated that online classes used to be primarily electives that students took in addition to the regular academic program; however, it is becoming more common for students to take online courses for credit recovery or core courses (“Online Classes,” 2007).

According to a survey of K-12 school administrators, most districts purchase online courses from multiple online learning providers, such as universities, state virtual schools, and other vendors; some develop and provide their own online courses (Picciano & Seaman, 2007). Course models—even within the same online school—can follow many formats. The 10-year old Virtual High School (VHS) offers member schools student seats in exchange for teachers who will teach sections of courses online. VHS is a consortia of “457 traditional high schools in 28 states (and 23 countries)” (Tucker, 2007, p. 2). Teachers must be certified in the secondary content area and trained in online teaching. Courses follow the standard school calendar and students must be assured computer access during the regular school day. The state-run Florida Virtual School (FLVS), by contrast, offers students the option of taking courses following the regular school calendar or at an accelerated or slower pace. Performance Learning Centers, which are run by the non-profit Communities in Schools, has sites in Georgia, North Carolina, Virginia, and Washington that offer personalized online programs to students

who are in danger of dropping out of school. Many online schools have built in methods for enabling parents to monitor their children's work and success daily (Tucker).

Initially there were serious reservations about the legitimacy of online teaching and learning. Some of this was carry over from perceptions of correspondence programs. The University of Chicago, one of the founders of correspondence programs, allowed students to complete 30% of their coursework through mail and reached a more diverse group of learners than the regular program; however, such programs were challenged by the academic community because they did not support instructors with course releases or financial incentives. This attitude is changing now that Tier 1 institutions like the Massachusetts Institute of Technology and Harvard University have launched online programs that integrate sound instructional principles (Gaytan, 2007). Changes in attitude are seeping into K-12 education also. New models of teaching exist "with opportunities to easily observe, evaluate, and assist instructors. And they are pioneering performance-based education funding models" (Tucker, 2007, p. 1).

Funding for tuition, salaries, and infrastructure for online courses varies. For example, Fairfax County, Virginia, funds site licenses, servers, and technical support through the technology department while training and support are paid from the instruction budget (Henke, 2006). Some online schools are totally funded by the state. Both Republican and Democratic governors have supported virtual schools, and they have some support from teachers' unions and other traditional public school supporters (Tucker, 2007).

There are few statistics on virtual schools; however, it is clear that, like brick-and-mortar schools, quality varies widely and some schools serve only highly motivated and skilled students. “Without efforts to ensure equal access among all students, virtual learning’s potential to serve students at all learning levels—especially those who are unsuccessful in traditional schools—will be lost” (Tucker, 2007, p. 7). Extending the reach of online schooling to assure that it serves all students is important, and there is increasing interest in the quality and accountability of online programs (Jacobson, 2007), to which organizations like SREB, NEA, and NACOL have responded with standards for online courses, programs, and teaching.

Regulation of Online Schools

Many states are using existing policies designed to deal with traditional schools for online programs. Some states like Colorado, Kansas, Minnesota, and Oregon are working on state-wide policy that is specific to online schools (Watson, 2007). According to Minnesota online school officials, opinions about online schools are changing. When BlueSky Charter School, Minnesota’s first online school, first opened in 2000, “legislators passed a law requiring online students to attend a physical school at least 2 days a week. The law was later repealed. The [Minnesota online] schools have won respect with attendance standards that use online tracking and logs verified by parents. Students who don’t comply are expelled” (Bauer, 2007, p. 1). The 20 existing Minnesota online schools are public, so there is no tuition cost and enrollment is open to any students in the state, and the schools offer various models and curricula. NACOL suggests that, like Minnesota, states need to develop a statewide vision for online schools

following these guiding principles: provide equal access to students across the state, provide both supplemental and full-time online schooling, allow freedom for innovation, make teachers an integral part of online schooling, involve parents, use quality curricula that meet standards, and provide necessary resources (Watson).

Beginning as a survey of 22 states, *Keeping Pace with K-12 Online Learning* has been published annually since 2004. For the past three years it has reviewed all 50 states, using a web-based survey and “a combination of Internet research and phone interviews with state education personnel” (Watson & Ryan, 2007, p. 11). These key developments noted in the 2006-2007 surveys have implications for regulation of online schools:

1. Florida Virtual School, the largest online program, has over 50,000 students;
2. Stock in K12, Inc., was offered for public sale July 2007;
3. The state-run Missouri Virtual opened in fall 2007, with more than 2,000 elementary through high school students;
4. State auditors in Colorado, Idaho, and Kansas released negative findings of full-time cyber school programs that have increased scrutiny of all online programs;
5. Wyoming’s task force on distance education gave the legislature the opportunity “to lay the groundwork for the development of online learning in the state” (Watson & Ryan, p. 6) since there is no current state-led online program;
6. Arkansas passed a law allowing charter schools to offer online learning only as part of a hybrid program;

7. The Arizona legislature passed a law to expand a pilot of online district programs, which the governor vetoed;
8. Indiana denied funding to virtual charter schools through June 2009;
9. Michigan began to implement its requirement that students have an online learning experience to graduate (Watson & Ryan); and
10. North Dakota passed a law that all online teachers meet the teaching requirements of the state in which a course originates, not North Dakota (Watson & Ryan).

The report suggested that it is important that all online programs maintain complete data that is publicly available and review their programs internally. One of the processes that should be evaluated is “teacher training, supervision, and evaluation, including communication requirements” (Watson & Ryan, p. 8).

Virtual schools are modeling new approaches to concerns such as funding and staffing schools. Among other things, the report recommended that states “enable true reciprocity for certified teachers by allowing teachers living in and certified in one state. . .to teach for a virtual school located in another state. . .without having to become certified in the school’s home state” (Tucker, 2007, p. 8). Successful online programs personalize instruction, institute new ways to assess and assist teachers, and have performance-based funding formulas based on students’ successful completion of courses (Tucker). The number of students in specific “online programs continues to grow rapidly, often between 10% and 50% annually” (Watson & Ryan, 2007, pp. 44); however, this still represents only between 1-2% of total students in the U. S. Since so many online programs are

multi-district or multi-state, the report suggested that national government or professional organizations should help by creating uniform standards for reporting on and evaluating online programs, including “teacher training, supervision, and evaluation, including communication requirements”; developing uniform policies, including teacher certification across state lines; and “disseminating best practices across states” (Watson & Ryan, pp. 45-46). Others recommend the interstate reciprocity and portability of teacher licenses (e. g., Hassell & Terrell, n. d.; National Council on Teacher Quality, 2007).

A survey of K-12 administrators revealed concerns primarily about funding, the quality of online courses, and teacher development (Picciano & Seaman, 2007). The SREB ETC (2007) listed similar concerns: “A state virtual school is a new entity that typically requires each state to establish new policies and sometimes eliminate or modify existing policies. Among key policy issues are funding, quality control, accountability, and organization and management issues” (p. 2). Apart from funding, all issues really center on teacher development, which is a quality control issue, an accountability issue, as well as an organization and management issue. The *NCLB* Leadership Summit proposed that “LEAs and SEAs should consider implementing policies that require new online teachers to complete an approved professional development curriculum ensuring their competency as online instructors prior to teaching students online and require experienced online teachers to demonstrate that they have the design and implementation knowledge necessary to deliver quality instruction to students” (Hassell & Terrell, n. d., p. 9).

Online schools may offer both solutions to and problems in staffing. Online teaching could attract people often lost to the profession: 60% of Georgia Virtual School's faculty are stay-at-home moms and dads and retirees (Tucker, 2007). Hassell and Terrell (n. d.) also point out that online learning could be a way to tap into teaching pools otherwise unavailable: stay at home parents, pregnant women, the ill, and those with the right content area who are outside of the geographical area. This could be increasingly important to replace a retiring teacher workforce and to meet the needs of the growing population of K-12 online students. Another policy concern is that online teachers not become second class drones who work countless hours with little recognition, reward, or oversight. "Studies of online teaching in higher education confirm that while the online classroom shifts the timing and frequency of teaching activities, the overall workload for instructors is approximately the same or even more than in traditional class" (Tucker, p. 5). Online classes can make teaching more transparent since teacher's plans and interaction with students can be observed, evaluated, and assisted; however, this requires supervision and support from administrators, who are largely unprepared to fill these roles.

The Education Sector report on online schools as laboratories of reform has four policy recommendations, one of which relates to teachers. While it supports licensing teachers to teach across state lines without having to have certification in each specific state in which students reside and recognizes that the quality of online courses and teaching vary wildly from school to school, it focuses solely on reciprocity and says

nothing about requiring preparation for online teachers that will enable them to adapt effectively to the online environment (Tucker, 2007).

Funding

The cost and funding of quality online schools is the same for brick and mortar schools (Watson, 2007; Tucker, 2007). Rather than using funds for physical plant and transportation, funds are spent on personnel to design, manage, and teach courses and on technology to assure that students have access to courses and instructors (Tucker, 2007). In spring 2007, Pennsylvania changed funding for virtual charter schools at the insistence of the state teachers' union and school board association, who believe that cyber schools should cost less to run than brick-and-mortar schools. South Carolina expanded a pilot virtual school into a full-time program with unresolved issues about eligibility of home-schooled and private school students. Indiana scrapped plans to open two new virtual charter schools when the legislature stripped funding—with the support of the state teachers' union, which stated that the money was needed to fund other priorities such as full-day kindergarten (Robelen, 2007). Misconceptions about real costs and competition for educational funds are central problems for online funding.

As reported in *eSchool News*, teachers' unions oppose spending public dollars on privately operated virtual schools and publicly operated ones like Florida's contracted K-8 program, which opponents say is essentially "a voucher system that flies in the face of the state constitution's requirement for a uniform public school system" ("Florida Leads," 2007, p. 1). Florida Senate Education Committee Chairman Gaetz is not alone in believing that "we should not, as stewards of public money, be automatically paying the

same or even close to the same amount of money for a virtual school day as we pay for a conventional school day” (“Florida Leads,” p. 1). Florida is paying Florida Connections Academy and Florida Virtual Academy, the two companies that provide full-time online classes for stay-at-home children from kindergarten through eighth grade \$5,050 per full-time equivalent student (“Florida Leads”) while FLVS is being funded at \$6,682 per full-time equivalent student; the statewide average for traditional schools is \$7,306 per student. Gaetz and other lawmakers may expect great savings from virtual education, but proponents object that virtual schools have huge expenses for data infrastructure and that “it’s shortsighted to focus on cost savings while virtual learning still is trying to gain a foothold in public education” (“Florida Leads,” p. 1). FLVS is moving ahead despite some resistance. In July 2007, FLVS launched its new Florida Virtual Global School; enrollment is open worldwide and costs from \$750 for one course up to \$4,500 per year for a full load of six courses (“Florida Leads”). Meanwhile, Indiana lawmakers refused to fund virtual charter schools in 2007. “Opponents argued they are unproven and would have siphoned millions of dollars from traditional public schools” (“Florida Leads,” p. 1). Funding of online schools is a source of continuing controversy.

Larreamendy-Joerns and Leinhardt (2006) note that the business models used for many online schools may provide financial stability but may also compromise the pedagogical integrity of courses. They also fear that pedagogical decisions may be made by technical experts rather than pedagogical experts. Another problem that is surfacing is increased spending on technology and reduced spending on staff development. “As school technology infrastructures have become larger and more complex, the percentage

of their technology budgets that schools spend on tech support has doubled in the last four years, according to a new report” (Devaney, 2007, p. 1). When budgets are tight, “items such as professional development and instructional applications are among the first tech-related expenses they cut”—even though such cuts “have a direct impact on instruction” (Devaney, p. 1).

Policy Issues

Spring 2007 was an active time for states enacting policies related to standards for virtual schools: Colorado created a new division to oversee virtual schools in the wake of scandals about insufficient oversight. The Kansas education department is under scrutiny for not following its own policies regarding oversight of virtual schools (Robelen, 2007). “Administrators of virtual schools, and the students and districts that tap into their offerings, worry that the increased demand for online education—which can allow students to dig into topics that especially interest them or take classes not offered at their own schools—may take a toll on the quality of the programs” (Davis, 2007, p. 16). Schools and districts often do not examine the courses that they purchase from online course providers. A state audit in Colorado in 2006 “revealed problems with many of their charter cyber schools: no accountability, lack of licensed and qualified teachers, incomplete background checks on employees, and inadequate student documentation” (Davis, p. 17). Organizations are developing criteria for teacher quality and course content for online schools. SREB standards are currently being used by the 16 SREB states and NACOL (2007) has endorsed the *National Standards of Quality for Online Courses* (2007) in an effort “to provide states, districts, online programs, and other

organizations with a set of quality guidelines for online course content, instructional design, technology, student assessment, and course management” (p. 2). NACOL added the 21st century standards developed by P21. The available standards must be enacted as educational policy, however, to prevent problems like those experienced in Colorado.

Online Teachers

Who They Are

Sixty-five percent of the 258 respondents to a survey and review of online schools and personnel conducted by NACOL identified themselves as online teachers (Rice & Dawley, 2007, p. 42). Of those, 63% had five or more years of total teaching experience; 35% had 10 or more years. Ninety-three percent had been teaching online for five years or less. Over half had a Master’s degree or better. Eighty-six percent had online teacher training required by 83.8% of their online programs or schools. Most of the training was provided during the first year of online teaching (61%); 38% received training in online teaching prior to teaching online, “suggesting that 62% of teachers did not receive any training prior to teaching online” (Rice & Dawley, p. 43). Only 40% reported receiving ongoing professional development. The content of their preparation included technology tools (91%), facilitation strategies (78%), multimedia lesson design principles (55%), “training on practice-based knowledge” (74%), and “training on theoretical foundations” (57%) (Rice & Dawley, p. 43).

Given the increase in online students, there will be a greater need for more online teachers. The results of the *Speak Up* national survey of teachers indicates that recruiting teachers may be problematic. Forty-six percent of teachers have taken an online course;

24% are interested in taking one. Seventeen percent have taken online professional development, but only 7% preferred an online mode of delivery for professional development. Seventy-five percent of teachers believe “that technology enhances student performance and 58% specify enhanced engagement in learning” (Henke, 2006, p. 7). Twenty-eight percent would like to see online courses offered as an alternative in their district”; however, only 18% of teachers “believe that online classes are a good investment to improve student achievement” as opposed to 42% of parents and 39% of high school students (Henke, p. 3).

While 3% of teachers have ever taught an online course, only 24% are interested in teaching online; 63% are definitely *not* interested in teaching online (Henke, 2006). It may be that teachers recognize that “just as today’s virtual student differs in fundamental ways from those of the past, virtual teachers must also reflect different qualities. . . . It has become apparent that successful online teachers also require a unique set of skills” (Davis & Roblyer, 2005, p. 401). Cyr’s 1997 review of research, as cited in Davis and Roblyer, identified five necessary areas of competence specific to online teaching: “course planning and organization that capitalize on distance learning strengths and minimize constraints, verbal and nonverbal presentation skills specific to distance learning situations, collaborative work with others to produce effective courses, ability to use questioning strategies, ability to involve and coordinate student activities among several sites” (p. 401). The role of teachers is not the only significant difference between face-to-face and online schools.

Tucker (2007) stated that online schooling is not just “another delivery system for students. In a wide range of other industries, and now, increasingly in K-12 education, the Internet has enabled deep structural changes. In each case, new organizations developed alternative management structures, distribution methods, and work models” (p. 1). Some aspects of online schools remain much like traditional schooling, some aspects have already changed, and others are in the process of changing. Because of this, preparation for online teaching, certification required for online teaching, and ongoing support for online teaching vary widely from school to school—as do the actual tasks that online teachers perform. Pay can range from a set salary to being paid so much for each student who successfully completes a course. The U. S. Department of Education’s (2007) summary of AP offerings by six schools demonstrates the variety of employment situations and requirements:

- Colorado Online Learning has 35 part time teachers who are paid for \$165 for each student who passes a class. Teachers must have Colorado certification and take a survey that indicates their readiness to teach online.
- Florida Virtual School has 425 full time and 200 part time teachers whom they train in online learning, tools, and customer service; teachers are mentored through their first year. They are paid only for students who complete courses and get a bonus if they exceed their target number of completers.
- Iowa Online AP Academy purchases some of its classes through Apex, which uses its own instructors; some courses are delivered through video via the

Iowa Communication Network (ICN). ICN teachers take face-to-face AP training; Apex teachers have training in AP curriculum and online teaching.

- Johns Hopkins University – Center for Talented Youth does not provide training for its instructors, who are primarily higher education faculty with advanced degrees, not K-12 teachers, and who are assumed to have content and online expertise.
- Michigan Virtual High School has a pool of 180 eligible teachers from which it selects 70-80 instructors. All have had a four-week training program.
- Virtual High School teachers are certified and have completed professional development training online and are supported through the Community of Virtual Educators (COVE). (pp. 53-73)

Gaps in the details provided here reflect inconsistencies in reporting by online schools.

Preparation of Online Teachers

Hughes et al. (2005), Kleinman et al. (2005), and Lowes (2005) all found that “present demands on virtual school teachers were burdensome to reasonably assume within the available instruction time” (cited in Smith et al., 2005, p. 61). Revising courses and assignments, keeping courses current, communicating with students and parents, and engaging in professional development to keep abreast of developments add tremendous burdens to teachers who are already overwhelmed with teaching’s demands (Smith et al., p. 62). Online teachers are often required to rethink their teaching philosophy, adapt new instructional techniques, develop new dispositions, and constantly develop new technological skills. Coppola et al.’s (2001) study of 23 online instructors indicated that

they felt they were constantly changing their teaching styles and personas, were themselves constantly in transition. This lack of clarity in roles can be disturbing for online teachers. In a study of British online faculty, participants reported that they felt a disconnect between the importance of roles and their own competence to carry out those roles, indicating a need for more training but only after clear roles and competencies have been established (Briggs, 2005). Lowes sees online teachers as adventurous “immigrants” who revolutionize teaching and learning. According to Lowes, “immigrants leave the cultures and social practices [just as] those who teach online leave the familiarity of the face-to-face classroom for the uncharted terrain of the online environment, which has constraints and affordances that lead to very different practices’ (p. 1)” (cited in Smith et al., p. 63). The problem may not be as simple as defining roles and preparing online teachers to fulfill those roles. Online teachers’ perceptions of a lack of competence may also be caused by a disconnect between teachers’ beliefs and their actual practices.

Research shows that “teachers who readily integrate technology into their instruction are more likely to possess constructivist teaching styles” (Judson, 2006, p. 581), styles that are central to the design of many online courses. “This connection. . .implies constructivist-minded teachers maintain dynamic student-centered classrooms where technology is a powerful learning tool. Unfortunately, much of the research to date has relied on self-reported data from teachers. . .[that] too often presents a less than accurate picture” (Judson, p. 581). In Judson’s study, 32 K-12 classroom teachers were surveyed about their practices and then observed as they integrated technology into lessons. Data indicated “no significant correlation between teacher practices and teaching

philosophy” or “between teacher practices and attitudes toward technology” (p. 590). Judson also cited studies by five researchers between 1969 and 1999 that described a disconnect between teachers’ beliefs and their practices: “Although most teachers identified strongly with constructivist convictions, they failed to exhibit these ideas in their practice” (p. 581). A BellSouth (2003) study found that “teacher perceptions of how often and how effectively technology is used for student-centered purposes differ dramatically from students’ perceptions” (Judson, p. 582).

Judson (2006) attributes some of the variation to teachers’ lack of expertise in judging effective constructivist teaching. He also suggests that teachers need to experience professional development that would enable them “to access technology in ways that support their proclaimed (and likely deeply felt) student-centered intentions” (p. 592) and practice using the specific tools in constructivist contexts—“at the moment when it enables students [teachers] to gain deeper understanding” (p. 593). There may be other obstacles that prevent teachers from teaching the way they want to teach. Fox’s (1990) work suggests that “males feel comfortable in a lecturing role and that lecturing is a demonstration of expertise and status. Conversely, females feel comfortable in a listening role and at ease sharing their expertise with others” (cited in Briggs, 2005, pp. 259-260). Gender and personal dispositions may affect how well teachers adapt to the new roles implicit in online teaching. In Briggs’s study, participants expressed difficulties in managing time: “54 percent were concerned that online work could place the tutor on a 24/7 treadmill” (Briggs, p. 263). Participants were confused about the importance of various online roles—as is the literature. Briggs noted that “Ryan et al. (2000) suggest

that the facilitator role is crucial whilst Tammelin (2000) argues the manager role is critical” (pp. 264-265).

After teaching online, teachers reported changing their teaching styles, particularly “the increased use of the Socratic method, typified by a give and take between instructor and students with questions leading to learning” (Coppola et al., p. 8); however, Lowes (2005) also found that teachers felt more distant from their online students. Kleinman et al. (2005) found that students felt teachers who tried to get them to work collaboratively to solve problems rather than working directly with the teacher reported that their teachers were “less involved, less supportive, and less concerned about their individual progress” (cited in Smith et al., 2005, p. 62). Online teachers must struggle to reduce this perceived distance, employing skills they have not developed in their regular teaching practice. Confusion about what roles are actually demanded by online teaching, confusion about how best to enact these roles, feelings of inadequacy about their teaching performance, and confusion about whether they are, in fact, practicing in accordance with their beliefs—these all may cause cognitive dissonance for online teachers and have ramifications for their preparation as online teachers.

A study of perceived roles and competencies of university online professors in the United Kingdom indicates that participants felt a disconnect between the roles demanded of them as online instructors and their competencies in these roles. The study suggests that “clarity in roles and the development of appropriate competency frameworks is essential for optimal performance in online roles” (Briggs, 2005, p. 256). Studies by Rizzo et al. (1970) and Pearce (1981) demonstrates that changes “in roles can lead to role

overload, role ambiguity, and role conflict, [which are directly linked to] decreased job satisfaction, low performance and the propensity to leave organizations” (cited in Briggs, pp. 257-258). Other studies show that specifically “defining competencies which stem from roles not only reduces job dissatisfaction and low performance but is essential if organizations are to respond to change effectively” (Briggs, p. 258). In K-12 online schools, relevant roles and competencies can be established only in regard to specific circumstances since schools vary so widely. However, broad frameworks for different types of roles can be established and modified to meet local demands. The SREB and NEA standards for online teaching fail to differentiate between the roles performed by online teachers in various contexts.

In Briggs’s (2005) study, participants “perceived online and traditional roles to be similar in both environments and competencies to be the real differentiator between the online and traditional environments” (p. 266); therefore, defining the roles required by online teaching and preparing teachers to perform those roles may have consequences beyond virtual classrooms. “Seventy-four percent of respondents to an independent study of Virtual High School’s teachers said that becoming an online teacher changed the way they taught, and 75 percent responded that teaching online had a positive impact on their face-to-face teaching” (Tucker, 2007, p. 8). According to the survey, “teachers generally reported that after teaching online, their practice supported increased student participation[.]. . .greater emphasis on independent learning, [and] more effective use of questioning strategies.” Teachers participating in the survey also believed that an

“‘increase in individualization from online communications can support broader improvements in teaching and learning practice’” (Tucker, p. 8).

What is being done. According to Darling-Hammond and Bransford (2005), “growing evidence suggests that—among all educational resources—teachers’ abilities are especially crucial contributors to students learning (see, for example, Ferguson, 1991a; Rivkin, Hanushek, & Kain, 2000; Wright, Horn, & Sanders, 1997)” (p. 2). Unfortunately, in their summary of results of eight NCREL studies that address these online topics—student academic performance; characteristics of successful online students; qualities of effective online courses; professional development for effective online teaching and learning; challenges of online learning; and online learning, school change, and education reform—Smith et al. (2005) note that many “teachers currently teaching in online environments lack both the theoretical and practical understanding and are ‘learning on the job’” (p. 59). As a further complication, online teachers “are provided little if any release time, no extra funding, and little acknowledgement for their efforts; they often are overwhelmed by the enormity of the enterprise” (Smith et al., p. 59).

Online education has become widely accepted only in the past five years; therefore, few programs preparing teachers include virtual schooling. Four states now have specific endorsements for online teachers (Davis & Rose, 2007). Some argue that online teachers do not need special preparation. Some argue that online teaching is not really teaching since others frequently prepare the online course. Davis and Rose use the analogy of a textbook to refute this claim: Online course content is equivalent to a

textbook or other resources that are purchased; no one accuses teachers who use textbooks or other resources of “not really teaching” (p. 8). Asynchronous online teachers, who are largely certified teachers with experience in public schools, “report that they have never worked harder in their lives” (Davis & Rose, p. 8).

While states and schools of education may be slow to create credentialing specifically for online teaching and there may be those who continue to believe that online teaching does not require different competencies, in 2000, the International Board of Standards for Training, Performance, and Instruction (IBSTPI) held a workshop in England to begin creating a list of competencies for online teaching. “The workshop involved 25 people with experience in online teaching or with the construction of competence frameworks” (Goodyear, Salmon, Spector, Steeples, & Tickner, 2001, p.1). Since these competencies would be used by corporations with global perspectives, every effort was made to word competencies in a way “that minimizes problems of understanding and interpretation across national, linguistic and cultural boundaries. . .[and would] work in the various sectors of education and training: compulsory schooling, university, corporate training, and so forth” (Goodyear et al., p.1). Groups worked on the competencies over a period of more than year, with working groups creating “candidate competencies,” critiquing, revising, validating, and refining the competencies. IBSTPI admits that the competencies reveal an underlying philosophy that values “learner collaboration, a democratization of learning activities and roles, inclusiveness, and helping learners take responsibility for, and control of, their own learning” (Goodyear et al., p. 1). In fall 2006, NEA and SREB published online teaching

standards that are specific to K-12 school environments. These three sets of standards—IBSTPI, NEA, and SREB—were used in designing the online survey that is part of this study.

Virtual schools have been forced to provide their own teacher preparation both because little other training is available and because most “virtual schools provide detailed guidance on the pedagogy and content to be covered” (Davis & Rose, 2007, p. 9). While teachers may personalize courses, there is less tolerance for teachers’ ignoring the schools’ advertised pedagogical model than there is in traditional schools. Since virtual schools may cover large geographic areas and attract both accelerated and remedial students, teachers may have wide variations in student knowledge and content misconceptions in one class, but they must adhere to the proposed schedule, content coverage, and delivery method that have been advertised by the online school (Davis & Rose).

The U. S. Department of Education (2007) report, *Connecting Students to Advanced Courses Online*, assumes that districts will partner with an online provider, who will be “responsible for ensuring that instructors are effective and qualified” (p.30). Districts are advised to examine the providers’ initial preparation of teachers, ongoing support for teachers’ professional development, and evaluation of instructors. Under *NCLB*, online instructors, like all K-12 teachers, must be highly qualified” (U. S. Department of Education, p. 31). This means different things in different online schools, depending on whether they serve students across state lines. All require that online teachers be certified in the content area that they teach, but schools that teach students in

multiple states often do not care in which state a teacher is certified (U. S. Department of Education). Online providers differ in the additional training they require. Some schools, such as Colorado Online Learning, require that teachers already have the necessary skills for working in an online environment; this is determined through the application process. Others like Iowa Online AP Academy are not concerned about teacher training because they purchase courses and instructors from Apex Learning.

Some schools, such as VHS, FLVS, and Michigan Virtual School, train their online teachers, provide mentors during their first online teaching experiences, and provide ongoing professional development. “Like their students, online instructors require support in order to perform optimally” (U. S. Department of Education, p. 32). The description of the support provided by FLVS, however, sounds like customer relations as much as teacher support: instructional leaders, who are responsible for 50-60 online instructors, monitor teachers’ communication logs to assure that they are contacting parents adequately. If teachers are not meeting communication goals, “i.e., not adequately keeping in touch with the parents of online students, [then the leader] may assign another more seasoned instructor to serve as a peer mentor and help the instructor increase call volume” (U. S. Department of Education, p. 32).

Results of the *2007 Keeping Pace with K-12 Online Learning* (2007) surveys indicate the following about existing professional development in online programs: (a) many programs offer a mixture of online and face-to-face professional development of varying lengths and depth; (b) most programs include online pedagogy, online policies and guidelines, the learning management system, the use of technology required for

course delivery, and the use of state virtual school resources; and (c) those supporting specific initiatives such as providing AP courses also provide training relevant to the initiative (Pape, 2007). Although the report states that many programs offer online professional development—and goes on to give more detail about the types of professional development—of the 25 online programs profiled in the report, four make no mention of any kind of professional development for online teachers, and two specifically state only that they provide training in the learning management system (Watson & Ryan, 2007).

One section of *Keeping Pace* has the title of “Managing Online Teachers.” A number of the concerns have to do with general design and supervision, the kinds of activities performed by principals in traditional schooling: matching new teachers with mentors, setting policy for and checking up on teacher/parent communications, and providing appropriate technology; however, a number of items reflect differences between online and brick-and-mortar education. In recognition of the difficulties of online teaching and learning, three of the eight items refer to supporting and coaching teachers as they develop the skills necessary for successful student learning. Taking advantage of the transparency available in online teaching, three of the eight items specifically refer to oversight and ongoing review of teachers’ communication and work with students (Young, 2007). This section concludes with a list of eight recommended interventions that FLVS uses as methods of maintaining instructional quality. While Young refers to these activities as “interventions,” some read more like monitoring: “randomly call parents and students to ensure quality customer service” (Young, p. 42)

and monitor teachers' emails, phone calls, and assessments. Details like this paint a picture of policing as much as supporting instruction.

What needs to be done. NACOL (2007), recommends these actions be taken by online organizations and insists that they are critical because of “their importance to school reform in the twenty-first century” (Davis & Rose, p. 11):

- plan for and implement professional development, recruit and develop faculty to provide this professional development;
- integrate virtual schooling into preservice education;
- differentiate professional development based on need, role, culture, and context;
- and research professional development (Davis & Rose).

Based on Smith et al.'s (2005) analysis, eight NCREL “studies identify the situated and effective preparation of ‘highly qualified’ online teachers as a crucial element in the implementation of effective online learning programs” (p. 69).

SREB lists these considerations, which have implications for preparing online teachers, as being crucial when hiring online teachers: “Academic preparation (including certification in the discipline taught), teaching experience, online teaching skills, written communication, and time-management skills” (SREB ETC, 2007, p. 6) The same document warns that “what is significant, but often overlooked, is that the focus is on student learning, not on teachers teaching [in online courses]. . . . Not all teachers are able to make this transition” (SREB ETC, p. 2). Online students must develop new skills: “Unlike in a traditional classroom, students cannot sit in the back of the room and be

successful in online courses. They must be actively engaged, and they must possess reasonable communications and time-management skills” (SREB ETC, p. 1). Their “teachers, too, must adapt their teaching styles to become successful online teachers” (SREB ETC, p. 1).

NACOL’s (2007) *Professional Development for Virtual Schooling and Online Learning* lists five common misconceptions related to professional development for online faculty:

- Virtual schools and regular school counselors can handle the few participating students without leadership support.
- Any regular teacher is already qualified to teach online.
- Any highly qualified face-to-face classroom teacher is ready to teach a quality online course that has previously been prepared or purchased. Some say those who teach a section that is already online don’t really teach at all!
- Virtual schooling will fit with regular school routines and practices. The technology coordinator and counselor will provide any professional development necessary.
- Newly qualified teachers who learn about virtual schooling in their preservice programs will be ready to teach online when they graduate. (Davis & Rose, p. 5)

Administrators who are developing online programs often fail to recognize the necessity for preparing online teachers to teach online although “classroom teachers have rarely

received pre-service training in online teaching, nor have they had many opportunities to develop such skills on the job” (Pape, 2007, p. 40).

Just as critical as having a “professional development program that develops online teaching skills” is one that also “supports and mentors teachers during their first year of teaching online, and provides ongoing opportunities to expand or deepen online teaching skills” (Pape, 2007, p. 40). Pape lists four components of an effective online professional development program:

- identify online teaching standards “that will be in alignment with the vision of [the] program’s online course design” (p. 41)—recommended possibilities include the NEA and SREB standards;
- develop a professional development program that is all online or a hybrid of both face-to-face and online instruction in the delivery medium that the online school will use;
- monitor and evaluate online instruction in accordance with the adopted standards and make provisions to assist low-performing teachers; and
- provide ongoing professional development that includes keeping current with evolving technologies, reflection and personal goal setting, and “a variety of ongoing professional development offerings, including self-paced, just-in-time, and moderated, cohort-based offerings, and an ongoing administrative and technical support model for teachers” (p. 41).

Online schools are typically developed on a business model that is concerned with customer satisfaction, and some schools do not get payment for students who do not

complete courses successfully, so the motivation for preparing teachers to be effective is even greater than it is in traditional schools. SREB's (2005) survey of students' reasons for dropping online courses indicated that "*the course was too difficult*" was cited more often than any other reason. The two most likely explanations are that previous courses left students inadequately prepared or that the very nature of the online course—which places emphasis on student performance—was too demanding" (SREB ETC, p. 2). Students also reported *falling behind and could not catch up*. "This represents an important time-management issue for both the students and the teachers" (SREB ETC, p. 2). Technical problems were listed only infrequently as a cause for dropping an online course.

Teacher evaluation, frequently referred to as "quality assurance," is included in the discussion of professional development provided by online programs. Examples of quality assurance already in place are evaluation rubrics; "intervention strategies as a method of review for teachers" (Pape, 2007, p. 41); formal reviews; formative and summative feedback from observations; and evaluation programs that include achievement and retention of students as well as "teamwork, attitude and innovation, and professional growth" (Pape, p. 41). Many of these measures include student and parent feedback. The NACOL report strongly recommends including both formal professional development and quality assurance as part of the program plan (Pape).

According to an American Education Research Association (AERA) study, "teaching has been described as a set of techniques or behaviors, as a form of clinical decision making, as a cognitive apprenticeship based in disciplinary understanding, as a

therapeutic relationship, and as a process of continuing inquiry” (Grossman, 2005, p. 429). These differences are significant because “each of these views of the nature of practice might lead to a different form of pedagogy in professional education” (Grossman, p. 429).

Consensus on old views of teacher preparation no longer matters because the nature of academic preparation required for teaching has shifted. As of February 2007, Netcraft Secure Server found “almost 109 million separate websites on the Web” (Albion & Maddux, 2007, p. 303), which leads them to estimate that there are approximately 29.7 billion separate pages. While the primary challenge of research tasks used to be one of getting access to information in some physical form, the challenge has become “selection rather than access” (Albion & Maddux, p. 303). Mobile devices, which offer constant connection to the vast body of ever-changing knowledge, make memorization of information less important. Traditionally education was perceived as a relationship between individuals, in which the teacher dispensed knowledge. With the increasing influx of published knowledge that makes it impossible to master any field—even a narrow specialty, education has shifted toward constructivism, in which “personal understanding and problem-solving capacity rather than rote learning of codified knowledge” are stressed (Albion & Maddux, p. 304). More recently, the terms “knowledge webs” and “distributed learning” have been used to describe a view of knowledge called connectivism, in which knowledge is primarily a networking process rather than construction. “Connection to the network allows a person access to the aggregated knowledge of the network and it is possible for the network as a whole to

possess knowledge beyond that of any individual” (Albion & Maddux, p. 304). As an example, Downes (2006) explains that “although no single person knows how to build a jet aircraft and fly it from one continent to another, international air travel is a daily event” (cited in Albion & Maddux, p. 304). Albion and Maddux note that this shift in pedagogy creates problems in education because it “challenges professional identity” (p. 305); moreover, policymakers “continue to believe that the mark of an educated individual is the number of facts that can be recalled” and find connectivism “illogical and irresponsible. For learners accustomed to receiving content rather than constructing knowledge and understanding, the additional effort is not always welcome” (p. 305).

Connectivism may be directly linked to processes inherent to the online environment. The new learner-centered activities in online learning promote the cognitive processes learners use as they engage in activities naturally. Learners work toward understanding their experiences in the context of the activities, “reflect on the relationship between ideas, actions, and outcomes” (Sammons, 2003, p. 388), and formulate new ideas into words. “It appears likely that the evolution of a view of knowledge as a property of a network rather than any individual will have [a] . . . profound impact on the work of teachers in the 21st century” (Albion & Maddux, 2007, p. 305). Yadav and Koehler’s (2007) study of preservice teachers’ beliefs identifies an “apparent inertia in preservice teachers’ beliefs about knowledge [that] suggests that teacher education will need to explicitly address preservice teachers’ epistemological beliefs for working with networked knowledge” (cited in Albion & Maddux, p. 308). It is likely that

they will also need explicit instruction in revising their beliefs regarding online instruction.

Research has shown that while teachers profess to hold constructivist beliefs, their teaching practice is not constructivist except among teachers with high computer use (Albion & Maddux, 2007). There are clear obstacles to constructivist or connectivist views of knowledge actually being adopted for practice in schools—as they must be in online schools. As Albion and Maddux asked, how much harder will it be for teachers to accept and utilize this new view of knowledge as the property of a network rather than the work of the individual and how will questions of knowledge as property affect such issues as plagiarism, assessment of students, and collaboration? Networked knowledge makes it difficult to assess individual knowledge isolated from the network or even to identify who holds what knowledge. In addition, “recent research has highlighted the challenges involved in moving student interaction on learning tasks beyond the ‘divide and conquer’ approach of cooperation towards the dialogue required for collaboration” (Albion & Maddux, p. 307).

Preservice teacher education methods, courses, and online field experiences can help to prepare teachers for online learning, but finding appropriate online experiences may be difficult since most teacher educators are not prepared themselves to introduce preservice teachers to this new pedagogy. Despite the general acceptance of constructivist principles, Howley and Howley (2007) state that “only a few reports of constructivist teacher education and professional development are available (e.g., Grossman & Williston, 2002; Mintrop, 2001; Osterman, 1998)” (p. 286). Teacher educators may need

“re-education because education faculty experience in distance education is likely to have been different and inappropriate for the K-12 environment” (Davis & Rose, 2007, p. 11).

Since the late 19th century, educators have been talking about learning as situated, social, and distributed, Dewey in 1896, Vygotsky in 1934, and Lave and Wenger in 1991 (Barton, 2000). Education reform in the past 15 years has involved repeated discussion of the same three ideas in relation to students’ learning: situated cognition, distributed cognition, and communities of practice. “Less attention has been paid to teachers—either to their roles in creating learning experiences consistent with the reform agenda or how they themselves learn new ways of teaching” (Putnam & Borko, 2000, p. 4). Putnam and Borko recount Resnick’s (1987) stipulations about the limitations of traditional school practices: “as long as school focuses mainly on individual forms of competence, on tool-free performance, and on decontextualized skills, educating people to be good learners in school settings alone may not be sufficient to help them become strong out-of-school learners” (p. 5). These present important “implications for . . . the learning of preservice and inservice teachers” (Putnam & Borko, p. 5). The new learner-centered, contextualized activities in online courses are designed to promote active learning and reflection. This change applies to online teachers as well as to online learners.

If “cognition is (a) situated in particular physical and social contexts; (b) social in nature; and (c) distributed across the individual, other persona, and tools” (Putnam & Borko, 2000, p. 4), then there are repercussions in the ways teachers learn and are educated. “If the goal is to help teachers think in new ways, for example, it may be important to have them experience learning in different settings” (Putnam & Borko, p.

6)—away from the powerful traditions and constraints of the classroom. Multiple contexts have the best transfer: doing a summer workshop may help teachers “break set” and then in-class reinforcement can help facilitate teachers’ enactment of new practices. If learning is distributed over a group—and teachers are to experience that model themselves, it is difficult to justify current practices of preservice teacher education and the professional development provided for teachers—especially online teachers. Online teachers need to use performance and pedagogical tools to support, enhance, and transform their online teaching practice (Putnam & Borko).

The NEA *Guide to Teaching Online Courses* (2006) lists three recommendations for designing effective preservice programs: skill in using the Internet, experience as an online learner in classes that model good practice, and field experiences. *Teacher Education Goes into Virtual Schooling*, a product of a U. S. Department of Education FIPSE grant, has published best practices and free resources online. These professional support materials are available from Boise State University, FLVS, Iowa Learning Online, and Plymouth State University (Davis & Rose, 2007). While these free online teacher preparation materials are no doubt useful, more is needed to change the culture of teacher preparation.

Learning must involve activity, concept, and culture; this is as true of learning to teach as it is of learning any other content. “A situated approach contests the assumption that learning is a response to teaching. [Very little of the] complex web of actual [teaching] practice can be made the subject of explicit instruction. A great deal remains inevitably implicit in practice itself, where it is always available for those who have

access, to be stolen as required” (Brown & Duguid, 1996, pp. 48-50). The traditional route in teacher education of trying to make implicit knowledge explicit does not work well. When individuals receive extensive instruction, “if the social context is missing, confusion and disillusion are likely. By contrast, even though instruction is minimal, quite complex practice can be learned effectively and easily where the social context is evident and supportive” (Brown & Duguid, p. 51).

Learning culture is equally critical for effective inservice since one of the biggest concerns for teacher professional development is convincing teachers of the utility of new practices. For this reason, situated learning is even more crucial to preparing online teachers since “instruction is not to be considered as primarily *telling* situated learners what to understand. Rather it is an enterprise for presenting instructional conditions that aim to convince situated learners to recognize that other new knowledge has value in relation to what they already know” (Harley, 1996, p. 120). Such learning must be situated in a community of practice because “knowing is a matter of being able to participate centrally in practice and learning is a matter of changing patterns of participation” (Gee, 2000, p. 181). VHS’s Community of Virtual Educators (COVE) is the closest thing to a community of practice for online teachers, and it represents a small proportion of online teachers; furthermore, it is used as an evaluation tool by administrators, so it is difficult to determine how much “community” actually exists. By separating “what is learned from how it is learned and used,. . .by ignoring the situated nature of cognition, education defeats its own goal of providing usable, robust knowledge” (Brown, Collins, & Duguid, 1996, p. 20). Robust professional development

for online teachers means situating their learning in an online environment and using activities that “make deliberate use of the social and physical context” (Brown et al., p. 20).

A study by Rowan, Correnti, and Miller (2002) indicates that if preservice teachers have theoretical “book learning” rather than hands-on practice and opportunities for reflection, the best predictors of teacher effectiveness are their first two years of classroom experience—for good or bad (cited in Hammerness, Darling-Hammond, & Bransford, 2005). For this reason, online teachers need more than intensive professional development just before they become online teachers. They need “support in interpreting their experiences and expanding their repertoire, so that they can continue to learn how to become effective rather than infer the wrong lessons from their early attempts at teaching” (Hammerness et al., p. 375). Teachers need opportunities to become experts who can “attend to specific aspects of the classroom that are linked directly to the intellectual work of students, to generate more detailed observations and hypotheses about what they see, to qualify their observations and interpretations, to weigh the relative importance of certain kinds of information” (Hammerness et al., p. 379), and they need support as they do this.

Numerous studies (e.g., The National Research Council, 2000; Ball & Cohen, 1999; Lampert & Ball, 1998; Ericsson, Krampe, & Tesch-Romer, 1993; Gick & Holyoak, 1983) suggest that expertise is developed by repeated “experiences with a set of conceptual ideas, along with repeated opportunities to practice skills and modes of analysis” (cited in Hammerness et al., p. 401). Contemporary “learning theory makes [it]

clear that expertise is developed within specific domains and learning is situated within specific contexts where it needs to be developed and from which it must be helped to transfer” (Hammerness et al., p. 403). Since online teaching is substantially different from classroom teaching, online teachers need opportunity to develop at least basic competence before interacting with students; then they need the support of a trained mentor—not a supervisor—to help deepen their learning over the progress of their careers.

Not only must online teachers’ preparation be situated, it must involve the development of specific skills since the “process of planning quality e-learning experiences is very likely to be more complex and time-consuming than planning a conventional classroom experience” (Garrison & Anderson, 2003, p. 78). Garrison and Anderson list eight guidelines for designing effective e-learning experiences: “establishing curriculum; identifying resources; defining clear expectations and goals (process and content); addressing technological concerns; structuring activities (collaborative and individual); setting time frames; devising assessment processes and instruments; and selecting media” (p. 79).

Watson (2007) states that the most important skills and dispositions that are peculiar to virtual courses are written communication that can overcome the loss of body language, the ability to manage time when asynchronous courses can operate 24/7, the ability to design multimedia elements for synchronous courses, and recognizing and being able to adapt instruction to various online learning styles and disabilities. While this comment referred to students, it applies to teachers as well: “Social presence is

essential in a collaborative learning experience and is a necessary precondition to establishing cognitive presence” (Garrison & Anderson, 2003, p. 79). In order for online teachers to establish cognitive presence, they must be able to assess student development and knowledge at entry; organize and limit curriculum; select appropriate learning activities; provide time for reflection; integrate small discussion groups and sessions; provide opportunities to model and reflect; and design higher-order learning assessment instruments (Garrison & Anderson, 2003). Like their students, online teachers need to learn to “maximize the features and connectivity of their tools” (Prensky, 2005, p. 23).

A study by Kearsley and Blomeyer (2003) identifies five behaviors related to effective online teaching: “provide timely and meaningful feedback, create learning activities that engage students, keep students interested and motivated, get students to interact with each others, encourage students to be critical and reflective” (cited in Davis & Rose, 2007, p. 8). These behaviors are also critical for face-to-face teaching, but online teaching requires using different strategies to accomplish these goals. For example, creating community and moderating discussions in online courses requires skills not learned in regular teaching practice. Communication is usually text-based, requiring skills in written communication and in teaching students to communicate well. “Online teachers must also develop an understanding of how and when to provide student support, how and when to provide opportunities for interaction, appropriate selection and use of resources, and the development of resources to serve specific instructional purposes” (Davis & Rose, p. 9). All of this must be done using primarily written communication.

The use of text for communication has ramifications beyond requiring that students and teachers learn how to write with clarity and precision.

In traditional classrooms, listening and reading are the usual ways to assimilate information while talking “is too often severely limited with the result that less emphasis is implicitly placed on the collaborative construction of meaning and confirmation of understanding” (Garrison & Anderson, 2003, p. 76). When there are fewer opportunities “to rigorously bring ideas together coherently through writing process,” schools “appear to be emphasizing information acquisition while limiting opportunities for critical discourse and higher-order knowledge construction” (Garrison & Anderson, p. 76). With e-learning, listening and talking are substituted with reading and writing, which are used as “both an individual and collaborative means of communication” (Garrison & Anderson, p. 76). Reading “becomes both a means to acquire information as well as a way to ‘listen’ to the views of the teacher and students. . . . Writing becomes the means to both construct meaning and communicate questions and ideas with the teacher and fellow students” (Garrison & Anderson, p. 77).

Within this environment, teachers need to build a presence that establishes “a feeling of trust and being welcomed, a sense of belonging to a critical community, a sense of control, a sense of accomplishment, a willingness to engage in discourse, a conversational tone, and a questioning attitude” (Garrison & Anderson, p. 81). Experience with cognitive and social presence in virtual environments is one reason why “for K-12 teachers to be effective in teaching in virtual environments, they need to have

experience with learning in them during their professional preparation” (Sprague, Maddux, Ferdig, & Albion, 2007, p. 158).

Dennen, Darabi, and Smith’s (2007) study of 32 online instructors and 170 of their students at an Australian public and a private university revealed that students are more concerned about instructors meeting their interpersonal communication needs than their cognitive needs. Instructors believed that learner performance is tied to instructors’ knowledge of content, use of models, clear expression of expectations, and providing feedback; however, learners rated meeting communication needs and being treated as individuals as most important. Learners clearly were concerned that the transactional distance implicit in computer mediated instruction be bridged by instructors. Learner perceptions of interaction with instructors depended on instructor responsiveness and having a sense of interpersonal connection with the instructor (Dennen et al.).

The literature also indicated that online learners want clear guidelines on expectations about their own participation; quick feedback—both quantitative and qualitative—on their performance; and a sense of a caring, human presence. Online students expected “a lot of course information up front, preferably before the course even began” (Dennen et al., p. 70). Online students are motivated by instructors who encourage them and guide them and prefer personal emails when they have questions or problems (Dennen et al.). Hara and King (1999) found that online college students’ “frustration originated from three sources: technological problems; minimal and not timely feedback from the instructor; and ambiguous instructions on the web site as well

as through e-mail” (cited in Falowo, 2007, p. 327). Providing the necessary communication in online courses can create serious time burdens (Falowo).

Obstacles to effective teacher preparation. The literature provides guidance in the theories behind designing effective teacher preparation for online teachers, and more and more data are available about what works in real online schools. NACOL’s report, *Professional Development for Virtual Schooling and Online Learning*, states that professional preparation should consist of a continuum of development for three separate roles: site coordinator, teacher, and designer. This study is concerned specifically with the role of teacher. Teacher preparation could follow a continuum from preservice, to induction, to early career, to master teacher in four threads. For example, a preservice teacher would gain experience as an online learner; an induction stage teacher would co-teach online; an early career teacher would teach online independently; a master teacher would mentor others online. Course design would flow from adapting materials to developing courses and designing curricula (Davis & Rose, 2007). Since they may have to make major revisions to a course even if they are not technically instructional designers, online teachers must appreciate instructional design. Professional development of online teachers should include “strategies suited to the content, culture and age of students. . . [and] is most effective when it includes clinical field experience and ongoing mentoring” (Davis & Rose, p. 9). In addition, synchronous and asynchronous online courses “require different pedagogy, communication, and pacing. . . . Anyone who is working with virtual schooling needs to understand and experience these differences” (Davis & Rose, p. 7).

Studies by McEwen and Gaytan (2006) and Wells (2000) show a need to continuously train faculty in using online technologies effectively (cited in Gaytan, 2007). Various media using an array of technology for content delivery, interaction, and assessment are available for online courses; those working with online courses need to experience the specific media they will be employing. Ongoing training is required to follow teachers through the continuum and to help them adapt to the varied, ever-changing technologies required by their online teaching practice. This kind of teacher preparation is never finished.

Teacher preparation is not the only thing that needs to be ongoing. Despite the growth of online education across diverse disciplines in post secondary education, including great growth in online offerings in teacher education, few students have taken education courses online and few instructors have taught online (Sprague et al., 2007). Sprague et al. list eleven areas for research in teacher education. Two areas relate specifically to the issue of preparing teachers to work in virtual environments: “the extent to which teacher education students experience online education and virtual environments in their teacher preparation programs” and “the skills that K-12 teachers will need to function as instructors in virtual schools of the future” (Sprague et al., p. 15). Clearly, we need to know more about teacher education programs that can provide effective online practicum experiences.

Smith et al. (2005) list these barriers to completing such research: lack of access to critical data, the distributed nature of online learning, school culture and educational research, assessments, study time frames, funding, and the focus of staff development

research on student achievement. Researchers must overcome barriers to find answers to these questions:

- What are characteristics of successful online learners and do these apply to online teachers?
- Is online teaching significantly more difficult than face-to-face teaching?
- How can online teachers keep up with ever-changing technologies?
- Does online teaching transform educational practice? (pp. 75-76)

While there is a need for more research, there is a growing body of information on the preservice and inservice needs of online teachers.

Online Teaching Standards

ISTE (2002) published its first edition of the National Educational Technology Standards (NETS) for Teachers in 1993. The NETS were revised and expanded in 1997 and 2000; however, the existing standards are not intended to relate specifically to online teachers; they represent the skills and dispositions all classroom teachers must possess in order to effectively integrate technology into regular instruction and meet the needs of today's students. In 2002, ISTE used a Preparing Tomorrow's Teachers to Use Technology (PT³) grant to convene a group of teachers, teacher educators, curriculum association members, administrators, and technology coordinators to produce performance profiles that teacher preparation programs can use to develop and assess their programs. These profiles are based on four stages of preparation: general preparation, professional preparation, student teaching, and first year teaching (ISTE, 2002). The group also created lesson plans for university faculty: "a set of real examples

of how the standards play out in practice” (ISTE, p. 1). This material is useful for classroom teacher preparation, but it does not specifically address the issues peculiar to online teaching.

One of the earliest guides specifically for online teaching was published by the American Federation of Teachers (AFT) (2000) as a response to the fact that “distance education courses for academic credit have been expanding dramatically at colleges and universities” (p. 5). These guidelines, which did not address K-12 issues specifically, were drawn from surveys of 200 AFT members who were distance education practitioners, a review of the literature on distance education, and “the advice of AFT’s higher education program and policy council in the 1999-2000 academic year” (AFT, p. 6). The focus of the union’s guidelines continued a policy debate “about distance education, arguing that educational quality, not financial gain, should guide where, when, and how distance education is employed” (AFT, p. 5). Fourteen broad standards emerged:

1. Faculty must retain academic control.
2. Faculty must be prepared to meet the special requirements of teaching at a distance.
3. Course design should be shaped to the potentials of the medium.
4. Students must fully understand course requirements and be prepared to succeed.
5. Close personal interaction must be maintained.
6. Class size should be set through normal faculty channels.

7. Courses should cover all material.
8. Experimentation with a broad variety of subjects should be encouraged.
9. Equivalent research opportunities must be presented.
10. Student assessment should be comparable.
11. Equivalent advisement opportunities must be offered.
12. Faculty should retain creative control over use and re-use of materials.
13. Full undergraduate degree programs should include same-time same-place coursework.
14. Evaluation of distance coursework should be undertaken at all levels. (AFT, pp. 7-15)

Two standards (1 and 12) protect faculty copyrights. Seven of the standards (5, 6, 7, 9, 10, 11, and 14) address equity issues, protecting students and instructors from administrative decisions to use distance education rather than face-to-face courses based on cost-effectiveness, failing to provide full academic rigor, services, or opportunity.

Three standards (3, 4, and 8) relate to design and program issues. Standard 13 simply prohibits granting undergraduate degrees solely from distance education courses.

Standard 5, “Close personal interaction must be maintained” (p. 10), might be construed to refer to teaching practices and maintaining teacher presence; however, in the context of the entire set of 14 standards, it is as likely to be the online equivalent of requiring that instructors keep regular office hours and hold regularly scheduled “classes.”

Only standard 2, “Faculty must be prepared to meet the special requirements of teaching at a distance,” (p.8) specifically relates to teaching practices. The elaboration of

standard 2 indicates that teachers reported needing longer time to prepare for and to communicate with students in distance education classes than in face-to-face classes. The AFT guidelines suggest that distance education teachers require these four supports to meet the special requirements of teaching at a distance:

Faculty must be provided adequate training and technical support—in terms of hardware, software and troubleshooting. . . . Additional compensation should be provided to faculty to meet the extensive time commitments of distance education. . . . Institutional reward systems for faculty. . . should accord positive recognition for the creative work of formulating distance programs. . . . Teaching distance education courses should be a matter of faculty choice. (p. 8)

Even though standard 2 seems to address teaching practice, policies relating to teaching loads, assignment, and assessment are the primary focus; therefore, these standards are of little help to this study but are representative of much that was published about online teaching. Until recently, little practical assistance for practicing online teachers or those who prepare online teachers was available.

By 2000, ISTE had developed the NETS technology standards for students, teachers, and administrators that have been adopted or at least referenced by more than 90% of American state departments of education; however, these standards make no reference to standards for online teaching. Simply establishing benchmarks for online teaching is quite new. Only since the fall of 2006, have education organizations published formal online teaching standards outlining the skills and conceptual understandings that teachers need in order to function effectively in an online environment. In August 2006,

SREB produced *Standards for Quality Online Teaching*. NEA published the *NEA Guide to Teaching Online Classes* in November 2006. These organizations disagree about what, if any, preparation should be required of online teachers and the specific skills, attitudes, and knowledge they must possess.

SREB (2006) released standards for quality online teaching to promote the effective preparation of online teachers and “to provide more students with the courses they need, regardless of where students and teachers reside” (p. 1). According to this document, a high-quality online teacher

- meets appropriate state standards;
- has appropriate academic credentials and prerequisite technology skills;
- plans, designs, and incorporates strategies to encourage active learning, interaction, participation, and collaboration;
- provides leadership that promotes student success through regular feedback, prompt response, and clear expectations;
- models, guides, and encourages legal, ethical, safe, and healthy behavior related to technology use;
- has experienced online learning from the perspective of a student;
- understands and is responsive to students with special needs;
- demonstrates competencies in creating and implementing assessments in ways that assure validity and reliability of instruments and procedures;

- develops and delivers assessments, projects, and assignments that meet standards-based learning goals and assess learning progress by measuring student achievement of learning goals;
- demonstrates competencies in using data and findings from assessments and other data sources to modify instructional methods and contents and guide students learning; and
- demonstrates frequent and effective strategies that enable both teacher and students to complete self-and pre-assessments. (pp. 2-7)

While these standards state that online teachers need to have experience as online students themselves, there is no suggestion that teachers should have specific courses in online learning.

The NEA's *Guide to Teaching Online Courses* (2006, November) addresses these topics concerning K-12 online education: opportunities and challenges for students and for educators, developing an effective online education system, preparing and supporting online teachers, skills of online teachers, and future considerations and next steps. Four organizations collaborated with NEA on this document: ISTE, NACOL, the National Commission for Teaching and America's Future, and VHS. The NEA document asserts that online teachers should maintain a valid state or national teaching license for the level, audience, and content of the online assignment. In addition, qualified online teachers are

- prepared well to use modern information, communication, and learning tools;
- motivated self-starters who work well without constant supervision;

- able to promote online dialogue to deepen the learning experience;
- [able to] foster community building virtually and facilitate collaborative learning;
- able to collaborate with students and student support staff/systems to further students' participation and success;
- [able to] specify learning objectives, and design activities and authentic assessments to measure mastery of the stated objectives;
- [in] possess[ion] of a sense of humor and. . .able to 'project' their personality through developing an 'online voice';
- [able to] exhibit mastery of the online environment(s) and the learning/content managements system(s) to be used; and
- effective in written communications. (pp. 9-10)

This document also recommends that online teachers “have completed professional development specifically geared to teaching online” (p. 10) and that “at least some of the training should be delivered in the online medium and in the ‘model the model’ design so that educators experience for themselves the medium and the methods they will be expected to employ” (p.10).

The International Board of Standards for Training, Performance, and Instruction (IBSTPI) published instructor competencies in 1993 that they revised and published in 2003 (IBSTPI, 2003); instructional design competencies (IBSTPI, 2000); and competencies for face-to-face, online, and blended settings (Klein, Spector, Grabowski, & de la Teja, 2004). While K-12 teachers face some of the same issues, these

competencies were specifically created for training in business settings; nevertheless, the IBSTPI (2000; 2003) separation of design from instructional competencies might prove useful for K-12 settings also since course formats—and teacher involvement in course design and development—vary widely. While there are common threads among these three sets of standards and guidelines, which recognize that online teaching requires special skills and support, they do not represent a consensus of what online teachers need to know and do, they have not yet had a serious impact on teacher preparation or teacher education, and they are not widely known even among online teachers.

3. Methodology

Research Design

The purpose of this study is to determine what experienced K-12 online teachers perceive to be essential knowledge, skills, and dispositions for effective online teaching.

This can be broken down into more specific questions:

1. How do online teachers rate the importance of specific existing online teaching standards to their online teaching practice?
2. How do online teachers rate the frequency of use of specific knowledge and skills to their online teaching practice?
3. How do online teachers rate the importance of specific knowledge and skills to their online teaching practice?
4. According to online teachers, what are the most effective ways to prepare and support online teachers?

This study used a mixed methods research design, incorporating both quantitative and qualitative data collection methods: a survey questionnaire, considered to be quantitative, and interviews, considered to be qualitative. Specifically, this study used research of online sources, documents, and interviews to gather background on four online schools; an online survey questionnaire composed of 100 closed questions, 3 open-ended questions, and 12 demographic questions administered to 49 online teachers.

Invitations to take the survey were extended to all experienced online teachers ($n = 92$) in four online schools. Of those who expressed willingness to be interviewed, two were selected for interviews from each of the four schools, one in humanities and one in math/science. (See Appendix 5 for the email sent to teachers who had volunteered to be interviewed; it requests that they make contact to schedule an interview at their convenience.) Interviews consisted entirely of open-ended questions.

While Cresswell (2002) states that the term and the practice of mixed methods research is new, mixed method design strengthens a study in many ways: “in making numeric data come alive, in precisely summarizing narrative data, in checking on the validity of data, in developing rationales, in catching side-effects, in eliminating rival explanations, in determining a study’s next steps and in determining the demand condition” (Krathwohl, 1998, 621). Miles and Huberman (1994) sum up the advantages of mixed method studies: “the careful measurement, generalizable samples, experimental control, and statistical tools of good quantitative studies are precious assets. When they are combined with the up-close, deep, credible understanding of complex real-world contexts that characterize good qualitative studies, we have a very powerful mix” (p. 42). Miles and Huberman cite Sieber’s (1973) reasons for linking quantitative and qualitative data: During the design phase of a study, quantitative data help by identifying representative samples and deviant cases while qualitative data help conceptual development and instrumentation. During the data collection stage, quantitative data supply background information, identify overlooked information, and help avoid ‘elite bias’; qualitative data make access and collection easier. During analysis, quantitative

data show how general specific observations are, correct “the ‘holistic fallacy’ (monolithic judgments about a case),” and verify or “cast new light on qualitative findings” while qualitative data help “by validating, interpreting, clarifying, and illustrating quantitative findings as well as through strengthening and revising theory” (p. 41). Figure 3.1 below, based on a design strategy of Miles and Huberman, illustrates how the design of this study linked the quantitative and qualitative sections.

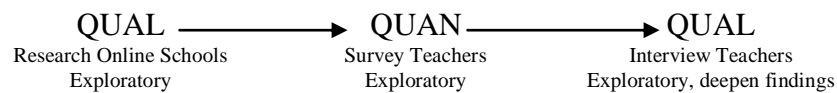


Figure 3.1. Linkage of quantitative and qualitative design components.

According to Krathwohl (1998), “surveys involve getting responses to questions or other stimuli from a representative sample of a target group, to which the researcher expects to generalize” (p. 352). Usually, the researcher has targeted what is significant before a study begins and focuses on such things as the commonality of responses, variability of responses, and how responses vary with certain demographic traits (Krathwohl). This study was designed to establish a connection between online teaching practice and emerging online teaching standards and competencies, so it clearly focused on commonalities and variations within the sample group of online teachers. One section of the survey specifically targeted the frequency with which online teachers actually use discrete competencies in their practice as well as their assessment of the importance of those discrete competencies; a second section targeted their assessment of recently published standards for online teaching.

Interviews are used for “exploring, probing, and searching to determine what is especially significant about a person or situation,” “determining how individuals perceive their situation,” and “providing clues to the processes and mechanisms called into play by the situation. [When] there is a desire to tap an internal process, to gain knowledge of a person’s perceptions, feelings, or emotions, or to study a complex individual or social behavior, some form of interviewing is most helpful” (Krathwohl, 1998, p. 286). With “qualitative data [such as responses to open interview questions] the researcher can . . . derive meaningful explanations from occurrences [because qualitative research is] an explicit explanation of a process occurring in local context” (Miles & Huberman, 1994, p. 1). Interviews were used in this study to address the complex behavior that is teaching and the perceptions and processes of its practitioners.

This study employed closed and open questions, which are considered to be quantitative and qualitative, respectively. Closed questions are pre-coded, allowing participants to select responses only from designated categories. “An ‘open’ question is one that respondents are allowed to answer in their own words; the responses are later turned into categories that can be quantified through a process of coding” (Bradburn & Sudman, 1988, p. 147). According to Bradburn and Sudman’s review of methodological studies, neither open nor closed questions are inherently superior, and each has benefits:

Most experienced survey researchers. . . believe that closed questions produce more relevant and comparable responses, because they specify the dimensions along which the respondents are supposed to answer the question; on the other hand, open questions produce fuller and deeper responses reflecting differences in

opinion and attitudes that are missed by the constraints of the pre-coded categories. (p. 147)

A mixed methods approach enjoys the strengths of each type of question. Open-ended questions often “produce more accurate answers to quantitative behavioral questions” (Bradburn & Sudman, p. 147). For example, online teachers may have over-reported what they consider to be desirable teaching behaviors on the closed questions. According to Bradburn and Sudman, “If respondents’ behavior is at the high or low end of the distribution, they tend to move towards the center and, thus, to under-report socially undesirable and over-report socially desirable behavior” (p. 148). Therefore, the qualitative open question interviews should help to explain or serve as a check for the quantitative responses on surveys.

Clearly, mixed methods design provides triangulation, allowing researchers to check the validity of one source with another and corroborate results. Using a variety of methods “reduces the risk of chance associations and of systematic biases due to a specific method, and allows a better assessment of the generality of the explanations that one develops” (Maxwell, 2005, p. 112). Using triangulation to provide support for a finding may also result in a search for explanation of inconsistencies that eventually leads to new insights (Krathwohl, 1998, p. 276). Krathwohl discusses Brewer and Hunter’s (1989) complementary multiplism that capitalizes “on the individual strengths of different methods by using them in complementary roles such that the imperfections of one covers [sic] the faults and limitations of another” (p. 620).

Krathwohl (1998) also summarizes the strengths and weaknesses of survey questionnaires and interviews: Questionnaires are quick and easy to administer, score, and summarize and may provide anonymity; weaknesses are possible low response rate, inability to determine if respondents understood the directions or the questions, inability to ascertain if intended respondents actually answered the questionnaire, possibility that non-respondents differ from respondents, and probability of the “halo effect”—the tendency when responding to scales to reply to the generality rather than the specific. Surveys are also characterized by a huge investment in preplanning: selecting the sample, creating the instrument, selecting a method for data collection, and making initial plans for data analysis. The benefits of interviews, on the other hand, are depth of response, assurance that directions and questions are understood, and ability to capture nonverbal responses; however, interviews are also costly, difficult to analyze and summarize, and may inhibit free responses because of interviewer effect and lack of anonymity. Qualitative research design allows the flexibility to check and change the course of the research as the study evolves, to take advantage of surprises and unexpected opportunities. The open-ended questions at the end of this survey questionnaire offered all respondents the opportunity to add details or information not addressed by the closed questions and to correct misconceptions.

Combining survey questionnaires with interviews balanced breadth of response with depth, difficulty of preparation and ease of analysis with ease of preparation and difficulty of analysis, and in general provided a series of checks and balances. The survey questionnaire and interviews also provided clear access to the perceptions of experienced

K-12 online teachers about the essential knowledge, skills, and dispositions necessary for effective online teaching. Conducting a member check also limited bias.

Participants

Participants were online teachers from four virtual high schools. The schools were selected as a convenience sample; however, the schools represent a purposive sample in that they employ varying course management systems, platforms, pedagogical models, and organizational structures. Moreover, all 92 experienced teachers in the four online programs were invited to participate in the online survey questionnaire. In addition, eight interview participants were selected, two from each of the four schools based on purposive sampling and a willingness to be interviewed. Demographic information on teachers from surveys was used to select a purposive sampling based on years of experience and discipline.

Participants willing to be interviewed were ranked on their experience as online teachers and separated into two groups: a) humanities and b) mathematics/science. From each of the four schools, one humanities teacher with average experience and one mathematics/science teacher with average experience were selected. From School 1, however, instead of one math/science teacher, one health/physical education teacher was selected to be interviewed in order to represent teachers with a different perspective and discipline. Deep interviews were conducted with the eight online teachers identified by the purposive sampling. Since this study attempted to establish a connection between standards and practice, the purposive sampling of teachers experienced in an online

environment satisfied Patton's (1990) prescription that the "logic and power of purposeful sampling lies in selecting information-rich cases to study in-depth" (p. 169).

Wharton-McDonald, Pressley, and Hampston's (1998) study of first grade teachers to identify effective literacy instruction was a revised version of an earlier study conducted by Pressley (1996) in which he interviewed and observed only first grade teachers identified as "outstanding" by reputation reports and by their students' success on literacy tests. Pressley et al. reported revising the second study to include teachers specifically identified as "typical" as well as those identified as "outstanding" because they felt the comparison would be crucial in establishing what separates effective teaching from ineffective teaching. Because this study is interested in online teachers' perceptions of online teaching standards and competencies rather than in describing effective online teaching based on observations, identifying participants as "typical" or "outstanding" in the interview pool would not further the study's goals. Instead, teachers were selected based on having average or typical experience.

From School 1, 7 (24.1%) of the 29 invited teachers responded; 13 (81.2%) of the 16 invited teachers from School 2 responded; 23 (74.1%) of the 31 invited teachers from School 3 responded; and 6 (37.5%) of the 16 invited teachers from School 4 responded. Of teachers invited to participate from all schools, a total of 53.2% ($n = 49$) actually responded. Teachers are responsible for the following online courses: 4.1% foreign language, 18.4% English, 28.6% math, 16.3% science, 24.5% social studies, and 8.2% other. Gender of the respondents was overwhelmingly female (81.6%). Only one respondent is not licensed in Virginia to teach the courses he is teaching online; he has

recently moved to another state and has licensure in that state but no longer in Virginia. The majority of teachers have 6 or more years of classroom experience; 4 have taught 1-5 years (8.2%); 19 have taught 6-10 years (38.8%); 16 for 11-20 years (32.7%); and 10 for over 20 years (20.4%). Forty-three (87.8%) have been teaching online for 1-5 years with only 6 (12.2%) having 6-10 years online teaching experience. Respondents are well-educated: 13 (42.9%) have Master's degrees, and 15 (30.6%) have Master's plus 15. Only 16.3% have had no training for online teaching; 16.3% have taken only non-credit courses in online teaching. Graduate credit courses in online teaching have been taken by 67.4%: 1-6 credit hours by 40.8%, 7-15 hours by 8.2%, and over 15 hours by 18.4%. Only 4 respondents (8.2%) have never taken an online course themselves. Another 4 respondents have taken at least one online course but none in online teaching pedagogy. A majority (57.1%) have taken online courses in online pedagogy as well as other online courses; 26.5% have taken only online courses related to teaching online. A majority (67.3%) have experience as online course designers. Twenty-three respondents are 31-40 years old (46.9%); 14.3% are 21-30; 20.4% are 41-50; 12.2% are 51-60; and 6.1% are over 60. All consider themselves comfortable or adventurous technology users.

Schools 1 and 2 are operated by public school systems. Both districts are within the top 100 largest school districts in the country. School 3 is a virtual high school developed as a collaboration of a public university and three public school systems. School 4 is a virtual high school developed and run by a state department of education.

In 2006, almost 60,000 students attended almost 60 schools in the district that includes School 1. The school system serves primarily middle-class families in a county

with a median income of \$59,000 per household and less than 4% of the families below the poverty line; however, about 22% of elementary and middle school students are eligible for free or reduced price lunch. The district describes itself as increasingly diverse with an expanding ESOL program. The majority of the population is Caucasian (about 64%), followed by Black (about 26%), Hispanic (about 6%), Asian/Pacific Islander (about 3%), and Native American (about 1%). Approximately 3% of students require ESOL instruction while about 15% require special education. District 1 is suburban with about 15 unincorporated towns and communities. District 1 prides itself on attracting and retaining the best teachers, who regularly receive local, state, and national honors—and on the community’s financial and personal support for the school district. The district has been recognized nationally as a community that has “what parents want.” The ten high schools offer a variety of special programs: regional governor’s schools; magnet schools in humanities, mass communications, technology, visual and performing arts, pre-engineering, mathematics and science, and health sciences; International Baccalaureate; and career and technology. Fifty six percent of the graduates earned advanced studies diplomas and 85% planned to further their education. The estimated cost per pupil for 2006-2007 was \$8,575. District 1 employed about 4,000 full-time teachers.

Online courses offered by School 1 include mathematics, social studies, English, health and physical education, and art history taught by the 29 online teachers who are employees of the school system. In addition, some students are also allowed to take courses from the Virtual High School, Inc. Students must apply for permission to take

online courses; acceptable reasons for taking online classes include scheduling problems, repeating a course, early graduation, homebound, home schooling, medical reasons, credit recovery, early graduation, needing band or chorus, or needing an elective. Criteria for acceptance are having 10 or more credits toward graduation, seeking to complete the program earning a standard or advanced diploma, having scores in the average to above range on standardized tests such as Stanford 9, and having the ability to work independently. There is no charge to students in the school system whose applications have been approved. Typically there are 1000 students taking these courses at any given semester. The online program was created to help students with academic talent and motivation who cannot meet their goals in face-to-face courses, students moving into the district who have scheduling problems, and students who need to recapture credit or catch up to be placed in the appropriate grade level. Teachers are trained in using the Blackboard platform. Most courses are purchased from a vendor. Online health and physical education courses and one science course have been developed by local online teachers.

In 2006, over 70,000 students attended approximately 90 schools in the district that is served by School 2. The school system serves primarily middle-class families in a county with a median income of \$66,000 per household and less than 4% of families below the poverty line. The district describes itself as diverse. The majority of the population is Caucasian (about 41%), followed by Hispanic (about 24%), Black (about 22%), and Asian (about 4%). Approximately 16% of students require ESOL instruction while about 11% require special education. School district 2 is urban/suburban with two

independent cities, four incorporated towns, over 30 unincorporated suburban communities, and a large military installation. School district 2 describes itself as proud of its school-based management, innovative programs, specialty programs, enhanced curriculum, teacher committees that guide the transition and implementation of the curriculum, multicultural program, health and wellness program, state-of-the-art technology infrastructure, and pioneering use of instructional support teams. It attests that district students score at or above the state and national averages on standardized tests and that pupils and teachers earn awards in regional, state, national, and international competitions. The ten high schools offer a variety of special programs: regional governor's schools; magnet schools in instructional technology, fine and performing arts, foreign language, mathematics, biotechnology, and sciences; International Baccalaureate and Cambridge; and career and technology. The estimated cost per pupil for 2006-2007 was \$10,496. School district 2 employed about 5,000 full-time teachers.

School 2 has the following goals for the courses offered through its online program: increase flexibility, help students learn to manage and organize their own learning, enable students to learn at their own pace and be successful, and increase state standardized test scores. The 17 online teachers are employees of the school system, which grants credit for courses. All students in the school system in grades 9 – 12 are permitted to take one course per session (fall, spring, and summer) at a cost of \$425. Nineteen courses are offered in English, social studies, mathematics, science, foreign language, and health and physical education. Courses use the Desire2Learn platform, are designed by the teachers, and are described as student-centered. Teachers are required to

complete training for online teaching and work as interns with experienced online teachers during their first experiences as online teachers.

School 3 is a virtual high school developed through the collaboration of a public university and three public school systems. In 2002, two education professors at the university began meeting to discuss ways to become involved in online learning as professional development for teachers. These discussions evolved into the concept of developing an online high school with complementary professional development for teachers as a way to provide flexible, pedagogically sound instruction for local school divisions. By the fall of 2003, 25 highly qualified teachers were registered in graduate courses to help them use and perfect their knowledge and expertise to explore the technical and pedagogical issues while designing and creating online courses that meet the Standards of Learning (SOL) and reflect best practices.

This school registered its first students in 2004, was opened to students outside of the three school districts in fall 2006, and is on the state's list of approved home schooling programs. School 3 offers 16 courses in English, math, science, and social studies. It has no full-time teachers, but 56 teachers are eligible to teach online students for its classes as needed; 89% of its teachers teach full time in public high schools. To be eligible to teach for School 3, teachers must be certified to teach in their discipline by the state, must be highly qualified by *NCLB* definitions in their subject area, and must have taken five specific one-hour online graduate courses in online teaching. In fall 2007, 16 teachers were eligible to teach English, 22 to teach math, 6 to teach science, and 12 to teach social studies.

Courses are created by teams of high school teachers, who design and build courses as part of a graduate program at a state university. Seventeen of the online teachers were also members of design teams before teaching for School 3, but online teachers do not design courses as part of their online teaching responsibilities. Online teachers in School 3 serve as coaches who interact individually with students through email, telephone, face-to-face meetings, video conferencing, and synchronous communications such as protected instant messaging. Teacher mentors serve as models; offer assistance upon request; provide feedback on products submitted by students; ask prompting, extending, and application questions; and generally support students' learning. Mentors also keep online course progress reports, which can be viewed by students and parents, current.

The guiding principles of this online high school are designing curricula that exceed state standards, situating learning in authentic problem-solving contexts using a community of practice model, providing highly qualified teacher mentors who have been educated in online learning and work one-on-one with students in a classroom of one with complete flexibility of time and place, and developing students' 21st century learning skills such as self-regulation and self-efficacy. The five one-credit graduate courses in online learning courses teachers must complete are offered completely online or in hybrid versions with occasional face-to-face meetings. Teachers experience the same learning model themselves since their work is completed primarily online using the same community of practice model that situates learning in authentic problem-solving contexts, and each teacher has a personal teacher mentor in a classroom of one with

complete flexibility of time and place. The topics of the five graduate courses are virtual schools, the learning model used in School 3, building online learning relationships, promoting self-regulation, and promoting conceptual learning.

Because all students have their own personal online teachers and can begin courses at any time, the number of students fluctuates constantly. The largest number of students who have been registered at any one time is 47. There are no relevant statistics on community or student demographics; students are either home-schooled or included in their regular public schools' statistics. The cost per course per student is \$695; \$600 of this goes to pay the online teacher. Sometimes the student's home school pays the tuition, sometimes the student's family pays, depending on the home school district and the individual circumstances. The online program does not receive per pupil funding from state or national sources; however, the sponsoring state university and the three collaborating school districts have provided funding for infrastructure, professional development for teachers, and support for course design teams. The students' home school district grants credit and administers SOL tests.

Students take courses in School 3 for a number of reasons: to recapture credit, to get ahead, to accommodate illness or injury, or to free themselves to take electives during the regular school day or pursue things like professional ballet or athletics. Some students are enrolled by their home schools because there is no one available locally to teach regular session or summer school courses, because the student is homebound, or because a transfer student needs special accommodations. In these cases, the school system pays for courses. In other cases, students' parents enroll their children because they are

traveling or simply want to extend the regular schools' offerings, and parents usually pay for courses. Students are not screened by School 3, but individual home schools may have screening processes they use for determining their willingness to pay for courses or accept credit.

School 4 is operated by the state department of education at the initiation of the governor and as a result of legislative action, growing from existing video-based distance learning courses delivered via satellite. It offers 20 AP, four non-elective, and eight world language courses to students in rural, suburban, and urban public schools across the state as well as to private and home-schooled students and to out-of-state students. Courses come from a variety of sources. Some were developed by instructors in School 4; some are purchased from or exchanged with other virtual schools; some are bought from commercial vendors. School 4 has joined a consortium and is also working in conjunction with another state virtual school to develop and share courses. School 4 implemented a curriculum development program spring 2007 and is in the process of developing and revising over 20 courses.

The school uses the Desire2Learn course management system. During the 2006-2007 school year, 3,198 students participated in courses. Courses are free to public high school students who have a B average and are taking a college preparatory program. Other students pay for courses. Tuition provides 5% of funding; the rest is provided by the state legislature. The purpose of the school is providing flexible options for the diverse educational needs of students and their families, particularly AP and foreign language courses where qualified instructors may not be available. School 4 believes that

online education is much more individualized since teachers work one-on-one with students rather than in the large group settings used in bricks and mortar schools.

School 4 employs 15 part-time and 19 full-time teachers. Part time teachers may teach as many as 50 students in two courses while full time teachers may teach as many as 100 students in four courses. School 4 has adopted the SREB *Standards for Quality Online Teaching* (2006b) and *Online Teaching Evaluation for State Virtual Schools* (2006a) to assist with the preparation and evaluation of its online teachers. In a September 3, 2007 email interview, one administrator stated that School 4 looks for “instructors who have a passion for their content area; want to teach kids and see their role as one in which student learning is fostered through a variety of means to meet the individual needs of the various learning styles.” Teachers are required to take a seven-week online facilitation orientation course initially as well as one week of face-to-face training each year. Additionally, online seminars and training in the course management system are offered. Teachers may also attend AP training and state and local conferences in the content area. Teachers are required to engage in continual professional development and participate in weekly faculty meetings. Hiring considerations include online teaching, written communication, and time management skills as well as academic preparation, teaching experience, and highly qualified status under *NCLB*. Online teachers for School 4 supplement the content that is provided to them, work with their students and the local school on site mentors, and assess students; however, they are not responsible for reporting grades. Local school mentors pull grades from electronic grade books for students when necessary. At the end of the year, the system generates grade

reports and sends them to the schools, who report grades and grant credit. Teachers are responsible for notifying local school mentors if students fall more than three assignments behind.

It is difficult to determine how far we can generalize the findings of this survey questionnaire in terms of the population. There are few national statistics available that describe online teachers. Statistics on online high school students are scarce and conflicting. According to NACOL, there were “more than 5000,000 enrollments in online courses grades K-12 and more than one-third of public school districts offered some type of e-learning during the 2005-2006 school year” (Powell & Patrick, 2005, p. 3). Other sources estimate that by 2006, “a majority of high school students will have had an online course before graduating” (NEA, 2006, p. 1). None of these sources address the number of online teachers working with these students much less any demographic details about that teacher population.

A 2007 national survey and review of online schools and personnel conducted by NACOL does provide demographic details on online teachers related to teaching experience, education, and training. Sixty-five percent of the 258 respondents to the NACOL survey identified themselves as online teachers (Rice & Dawley, 2007, p. 42). Table 3.1 below depicts a comparison of the teachers in the two surveys. The online teachers in this study have more total teaching experience, more online teaching experience, and more advanced degrees than those in the NACOL survey; however, fewer (83.7%) had training for online teaching than NACOL respondents (86%). Details are not available for all participants in this survey, but responses are available for

interview participants. Interview respondents had a higher rate (62.5%) of training for online teaching *before* they began online instruction than respondents in the NACOL survey (38%) (Rice & Dawley, p. 43). A comparison of teaching experience, education, and training of teachers in the NACOL survey and those in both the survey and interviews that composed this study reveals similarities. (See Table 3.1.)

Table 3.1

Comparison of Online Teachers in NACOL Survey and This Survey

Demographic Detail	National NACOL Survey	All Study Participants	Interview Study Participants
5 or more years total teaching exp.	63.0%	91.8%	88%
10 or more years total teaching exp.	35.0%	53.1%	38%
Teaching online \leq 5 years	93.0%	87.8%	88%
Master's degree	Over 50%	73.5%	62%
Training for OT (online teaching)	86%	83.7%	75%
Training for OT required by online school	83.8%	---	50%
Training provided 1 st year of OT	61%	---	50%
Training provided prior to OT	38%	---	62.5%
No training provided prior to OT	62%	---	37.5%
Ongoing PD development in OT	40%	---	50%
Training includes technology tools	91%	---	87.5%
Training includes facilitation strategies	78%	---	62.5%
Training includes multimedia lesson design	55%	---	50%
Training on practiced-based knowledge	74%	---	37.5%
Training on theoretical foundations	57%	---	25%

Online teachers in this study are representative of teachers in the NACOL study in many ways. External validity is not such a concern for the interviews, which use qualitative methods; however, the two parts of this study should not be separated. Since it is the intent of this study to create a rich description of online teachers' perceptions of the standards and competencies required for effective teaching as well as a wider sampling, it is helpful that the participants of this study are representative of online teachers nationally in many respects.

Instruments

The survey questionnaire solicited participants' responses to four types of questions: their perceptions of the importance to online teaching of the published NEA and SREB standards, the frequency with which respondents complete selected tasks in their online teaching practice, the importance of the selected tasks to their online teaching practice, and demographics. The selected tasks include competencies in written communication, online pedagogy, technology use, course design, and course management.

The twelve NEA standards (2006), the first standards on the survey, came from a section of their document entitled, "Defining Credentials and Skills of Highly Qualified Online Teachers." This study assumes that having state or national teaching credentials, content knowledge, knowledge of pedagogy, and knowledge of content pedagogy are all prerequisites for any K-12 teaching, be it online or in a classroom, so references to those requirements in the NEA standards were omitted. Immediately following those requirements on the NEA document was a bulleted list preceded by these words: "In

addition, online teachers should be prepared to provide specific evidence to school leaders demonstrating that they. . .” (p. 9). The bulleted list of twelve descriptors of effective online teaching that follows were used, verbatim, as the NEA standards on this study’s survey.

The second set of standards on the survey, the eleven SREB standards (2006), come directly from their published document, in which they refer to the statements as “Standards for Quality Online Teaching.” The only alteration is that the phrase “The teacher” has been changed to “Effective online teachers,” and verbs have been made plural. The indicators that follow each standard have been omitted in the standards section of the survey but were included in the list of online teaching tasks. The first standard, Academic Preparation, was omitted from this survey because it covers credentialing, content knowledge, as well as general and content pedagogy, all prerequisites for any K-12 teaching.

Participants evaluated the two sets of standards using a 6-point semantic differential scale ranging from *Extremely Unimportant* to *Extremely Important*. (See Figure 3.2 below.) The semantic differential scale is an equal interval scale, a variation of the Likert scale using “adjective pairs, with each adjective as an end anchor in a single continuum” (McMillan & Schumacher, 2001, p. 263). As Mann, Phillips, & Thompson (1979) note, “Since its introduction by Osgood, Suci, and Tannenbaum (1957), the semantic differential has been widely used by psychological investigators” (p. 213).



Figure 3.2. Semantic differential scale used to evaluate standards.

The use of the semantic differential scale is important to this survey because of the survey's length. The scaled helped to keep the survey administration to approximately 30 minutes even though it included 100 items. The semantic differential scale, which is like the linear, numerical scale except that it does not use numbers to represent the intervals, is simple, clear, and productive. Respondents understand the task they are to perform. The scale "is very economical, since a single question, set of instructions, and rating scale apply to many individual items. . . . [This scale] provides *both* absolute measures of importance and relative measures, or rankings, of responses among the various items compared" and offers this additional advantage: "even though ranking is available, the rating scale is an equal interval scale and provides data that are relatively unrestricted compared to ordinal data from forced rankings or paired comparisons" (Alreck & Settle, 1995, p. 127).

Semantic differential scales use pairs of words that are bipolar opposites; however, since the pairs of words at the end of the continuum must "*function* as antonyms in the context of the rating task" (Mann et al., 1979, p. 213), it is critical that the pairs of adjectives be bipolar opposites. "To the extent that this is not true, interpretation of the instrument is subject to some question" (Mann et al., p. 213). To avoid questionable results, this survey followed the design guidelines stipulated by

Alreck and Settle (1995) for linear, numeric scales: Scale extremes were labeled “‘Extremely’ to define the dimensions, and the words used [were] bipolar opposites” (p. 129); intermediate scale values were spaced at equal intervals with no labels.

Some controversy exists over whether the intermediate points should be labeled or not. Alreck and Settle advise not using word labels on linear, numeric scales: the bulk of the research shows that labeling intermediate points with words does not produce more effective results and can produce scale points that do not actually represent equal intervals. They argue that consensus on the meaning of words like *very* and *slightly* is “less likely than for the interpretation of a series of numbers [and that graphically spacing equal distance between numbers forms] a conceptual mapping of the underlying evaluation” (p. 127). The semantic differential scale relies totally on the conceptual mapping of evenly spaced intervals since it does not use numbers or words to label the intermediate points.

Six was selected as the number of intervals in the semantic differential scale for the standards section of the survey for two reasons. Going as low as *4* on this section might produce floor/ceiling effects. In addition, McMillan and Schumacher (2001) note that “deleting the undecided or neutral choice has merit in instances in which respondents have a tendency to cluster evidences in the middle category” (p. 263). Selecting an even number of intervals established a midpoint for negative and positive responses, and eight intervals simply crowded the monitor screen in a way that made reading the items difficult. *Six* was the only choice.

The standards and the scale were arranged in a multiple-rating matrix. The multiple-rating matrix is a semantic differential scale in a condensed format; items are listed in a matrix of rows with multiple columns (Alreck & Settle, 1995). The multiple-rating matrix saves space and permits respondents “to *compare* their evaluations from one rating object to another. Each item is more likely to be rated using the same criteria and frame of reference as those of the others. Ratings obtained in this format are very comparable” (Alreck & Settle, pp. 135-137).

One problem with a multiple-rating matrix is the complexity. Respondents may “refuse to complete it or be confused and make mistakes such as filling in all of one row or one column” (Alreck & Settle, 1995, p. 137)—making the data useless. The online format of this survey questionnaire minimized these problems. Respondents were unable to fill in more than one choice, so duplicate answers were impossible. Horizontal lines in alternating colors encompassed each item, making it easy to see which choice went with which item. Moving from section to section electronically also made the survey seem shorter and less overwhelming than reading the sheets of paper that would have been required of hard copies. To avoid the fatigue caused by reading the 76 tasks twice—once for frequency and once for importance, items were placed on the screen with the frequency scale to the left, tasks in the middle, and the importance scale to the right.

The list of online teacher tasks was created by collapsing validated competencies from two different documents: the indicators in the SREB *Standards for Online Teaching* (2006) and the skills in the NEA *Guide to Teaching Online Courses* (2006). Competencies from the IBSTPI list of 77 validated competencies in *Instructor*

Competencies: Standards for Face-to-Face, Online, and Blended Settings (Klein, Spector, Grabowski, & de la Teja, 2004) were used as a model for creating discrete, observable tasks. SREB included 62 indicators; NEA listed 19 skills. After omitting all material relating to academic preparation and credentialing, The NEA and SREB skills and indicators were translated into 15 written communications, 29 online pedagogy, 12 technology use, 9 course design, and 11 course management competencies—a total of 76 tasks. An expert panel examined, critiqued, and validated the list of tasks. Later a pilot survey identified problems of ambiguity, length, confusion, and/or error in the survey itself.

The expert panel consisted of seven experienced online teachers, five secondary and two post-secondary. All of the five online secondary teachers are highly qualified by *NCLB* definitions, are licensed by the state for the subjects they teach online, two in mathematics, one in social studies, one in science, and one in English. Two are also certified in their subject areas by the National Board for Professional Teaching Standards. Three have had 6-10 years of classroom experience; two have had between 11-20 years of classroom experience. The two post-secondary members teach face-to-face and online graduate courses in instructional technology. All panel members are female. Ages fall in three ranges: 42.9% between 31 and 40, 42.9% between 41 and 50, and 14.3% between 51 and 60. One member has a doctorate; six have master's degrees plus at least 15 hours and are currently working on doctorates in instructional technology. One member has not had formal preparation in online teaching; 28.6% have earned between 1 and 6 graduate credits in online teaching; 57.1% have earned more than 15 graduate credits in online

teaching. One member has never been an online student; six have taken multiple online courses, including courses specifically in how to teach online. All have been teaching online courses for at least four years. All members of the panel have had online course design experience. Four members consider themselves comfortable technology users; three are confident explorers. (See Appendix 8 for more details on the expert panel.)

Table 3.2 provides a sample of the method used for converting the original skills and indicators from NEA and SREB into the 76 tasks or competencies used on the survey. (See Appendix 1 for a complete list.) The table has three columns: Revised tasks used in this study, Original skills & indicators of NEA^N & SREB^S, and Rationale for revision. The first column states the number of each task as it appears in the survey. The second column gives the original source of the task. In this section, ^N = NEA Skill while ^S = SREB Indicator. The numbers after *N* refer to the 19 Section IV “Skills of Online Teachers,” which are listed but not numbered in the NEA *Guide to Teaching Online Courses*. The numbers and letters after *S* refer to the 11 standards (numbers) and indicators (letters) beneath each standard, which are not numbered or lettered in the SREB *Standards for Quality Online Teaching*.

This combined set of tasks or competencies was used for two parts of the survey: frequency of use in online teaching practice and importance to teaching practice. These principles guided the development of the list of tasks. The third column in Table 3.2 gives the numbers that refer to the rationale(s) below for making revisions.

1. Eliminate items that are redundant; select the most concise version or create a concise version.

2. Separate items that have two or more discrete tasks embedded together.
3. Simplify language, especially if it confused respondents during the pilot test.
4. Phrase competencies in terms of observable behaviors.
5. Delete qualifiers.
6. Omit an item if content is too vague to state clearly.
7. Omit an item if not observable.
8. Omit an item if it relates to teacher preparation or subject area content.

Appendix 1 provides a complete illustration of the process for developing each of the 76 tasks. Table 3.2 below provides a sample of this process.

Table 3.2

<i>Sample of Procedure Used to Collapse NEA Skills & SREB Indicators into Tasks</i>		
Sample Revised Task Used in This Study	Original Skills & Indicators of NEA ^N & SREB ^S	Rationale for Revision
1. Provide feedback for assignments	~Provides timely, constructive feedback to students about assignments and questions. ^{S4h} ~Encourages interaction and cooperation among students, encourages active learning, provides prompt feedback, communicates high expectations, and respects diverse talents and learning styles. ^{S4b} ~Provide appropriate and timely feedback to students. ^{N11}	1, 2, 4, 5
2. Answer questions	~Provides timely, constructive feedback to students about assignments and questions. ^{S4h} ~Participate and be present in an online course, meeting student needs and school expectations for teacher presence. ^{N12}	2, 4, 5
3. Deliver content (written 'lectures')	~This is a <i>negative</i> form of an SREB indicator: Demonstrates effective strategies and techniques that actively engage students in the learning process (e.g., team problem-solving, in-class writing, analysis, synthesis and evaluation instead of passive lectures). ^{S3a}	[See note to left.]
4. Facilitate collaborative learning	~Facilitates and monitors appropriate interaction among students. ^{S3b} ~Promotes learning through group interaction. ^{S3d} ~Encourages interaction and cooperation among students. ^{S7d} ~Establishes and maintains ongoing and frequent student-student interaction. ^{S4d} ~Foster student-to-student collaboration. ^{N10} ~Encourages collaboration and interaction among all students. ^{S7d}	1, 4, 5
10. Focus on creating a specific tone	~Communicate an appropriate online tone during course delivery. ^{N8}	5
11. Maintain 'teacher presence'	~Participate and be present in an online course, meeting student needs and school expectations for teacher presence. ^{N12} ~Establishes and maintains ongoing and frequent teacher-student interaction, student-student interaction and teacher-parent interaction. ^{S4d}	1, 3
12. Guide students' time management	~Uses student data to inform instruction, guides and monitors students' management of their time, monitors learner progress with available tools and develops an intervention plan for unsuccessful learners. ^{S4g}	2
13. Demonstrate online etiquette	~Demonstrates effective use of Internet browsers, e-mail applications and appropriate online etiquette. ^{S2b}	2, 4, 5

For questions on how often online teachers employ a competency, this study used a verbal frequency scale. “While similar to a Likert scale, a frequency scale differs in that it indicates *how often* participants have taken some action rather than their opinions about some policy or issue. Verbal frequency scales use five words to indicate frequency: *never, rarely, sometimes, often, always*” (Alreck & Settle, 1995, pp. 118-119). At the request of the dissertation committee, the word *sometimes* was omitted because it is vague and the omission forced participants to select a negative or positive bias since the scale had only four choices. It became apparent early on that the word *always* would not work for most of the categories. The choice *always* seemed to ask whether teachers elect to do an action if given the opportunity; this study is concerned with how often they routinely complete the action, so the word *constantly* was substituted for the word *always*. Figure 3.3 demonstrates the verbal frequency scale used in this survey.

Never Rarely Often Constantly

○ ○ ○ ○

Figure 3.3. Verbal frequency scale used for indicating frequency of employing tasks.

One exception to this scale was for questions relating to course management. During the pilot test, respondents reported having difficulty figuring out how to respond to questions like How often do you track student registration? For this category, the last choice on the scale was changed from *constantly* to *always*. Most of these tasks are performed by teachers once per course if at all, depending on the school’s policy and organizational structure, so the concern was if teachers were routinely given the responsibility for performing these tasks rather than how often they completed them.

There are advantages to using this verbal frequency scale rather than simply requesting that participants give an absolute number that represents how often they perform a task: Participants may not be able to assign an absolute number to indicate how often they complete an action; they may not remember exactly how frequently they have performed an action; and sometimes how often the behavior occurs is a matter of opportunity, not choice or willingness. Verbal frequency scales indicate “the proportion or percentage of activity, given an opportunity to perform it” (Alreck & Settle, 1995, p. 119). Rather than relying on absolute memory, verbal frequency scales focus on participants’ “*policies* concerning the frequency of certain actions” (Alreck & Settle, p. 119). Since the purpose here is to discover online teachers’ perceptions of how frequently they perform certain behaviors, the verbal frequency scale, which reveals the “general policy and underlying motivation,” is a better instrument than one that simply tests memory and opportunity (Alreck & Settle, p. 119).

The disadvantage of using a verbal frequency scale is “that it provides only a *gross* measure of proportion. . . . [Different participants] may assign different breakpoints between categories” (Alreck & Settle, 1995, p. 119). Also, “if a summated score is to be compared, each item should have approximately equal weight in determining the overall index, or a weighted average should be computed in place of a *total* score” (Alreck & Settle, p. 121). Since neither individual competencies nor individual standards are of equal weight, a summated score would be impossible with these data.

The verbal frequency scale was arranged in a multiple-rating matrix. The advantages of verbal frequency scales include ease of assessment and response. Verbal

frequency scales make it simple to make “comparisons among subsamples or among different actions for the same sample of respondents” (Alreck & Settle, 1995, p. 119).

For questions asking the importance of specific tasks to online teaching practice, the same semantic differential scale was used for the standards arranged in a multiple-rating matrix. (See Figure 3.4 below.)



Figure 3.4. Semantic differential scale used for importance of tasks.

The use of scales permits the creation of reports to “describe the *distribution* of respondents along the scale or in the categories. The position of various individuals or groups can then be compared with one another. Scales can be coded with numbers” (Alreck & Settle, 1995, p. 113), which can be more easily manipulated than words. Numeric codes save time and help to ensure accuracy, reliability, and validity. In addition, when “scales or indices are used instead of single questions, the data almost always become more stable and easier to interpret” (Bradburn & Sudman, 1988, p. 159). According to Bradburn and Sudman, “A scale is considered reliable if the various items all measure the same thing. . . . A scale is considered valid if it measures what it claims to measure and not something else” (p. 160). Based on the respondents taking the pilot survey, this survey has “*face validity*, that is. . .the questions appear to relate to the concept being measured” (Bradburn & Sudman, p. 160).

This discussion of the survey began with the much simpler standards section. In actuality, the survey starts with demographic questions and then moves to questions about the frequency with which teachers perform the 76 specific tasks and the importance of the same 76 specific tasks in their online teaching practice. On each screen, participants saw a matrix with the tasks in the center and a scale on the left to judge frequency and a scale on the right to judge importance. To save participants time, each task had to be considered only once. (See Figure 3.5 below.)



Figure 3.5. Facsimile of placement of scales for frequency and importance of tasks.

Participants scrolled down for all 76 tasks, which were grouped by these categories: written communication, online pedagogy, technology use, course design, and course management. This survey was grouped by topic and by scaling technique, which is “the ideal situation because there are both a logical sequence and a high degree of time and space economy” (Alreck & Settle, 1995, p. 154). This organization also follows Alreck and Settle’s advice to start with questions that are quick and easy. The study began with demographic questions, the simplest kind to answer; moreover, participants were informed that those questions would help to reveal patterns and establish a context for teachers’ responses. Teachers may have found the list of 76 tasks exhaustive, but they

were being asked to make judgments about their own teaching practice, not professional standards. The task questions provide a smooth transition to the third section that asks, given the actual tasks you perform, what standards are important for online teachers? As Alreck and Settle suggest, the questionnaire is “a conversation between the respondent and the researcher,” and the survey was designed so as to “ensure proper flow of the dialogue” (p. 155).

Placed at the beginning where respondents were more likely to complete it, the demographics section of the survey included school (in order to identify the course model and platform for the teacher’s online teaching assignment), discipline, experience as classroom and online teacher, education, certification, preparation for online teaching, experience as online learner, technology skill level, gender, and age. Demographic data are useful because groups often “differ significantly on the issues of importance” (Alreck & Settle, 1995, p. 25). The demographics section is critical because it portrays the nature of the sample, allows for comparison with the population as a whole, and can be divided into subgroups (Alreck & Settle). The demographics were also critical in purposive sampling for teacher interview participants. This survey was easy to take. All pilot study respondents reported that they were able to complete it in about 30 minutes. While they reported some confusion on individual items (which were subsequently corrected), they found the format to be clear and easily navigated.

One disadvantage of using web-based survey questionnaires like this one is that all of the difficult work must be done before the survey is fielded, but using a computer makes editing, revisions, and piloting easier. There are many advantages: using web-

based questionnaires improves response by eliminating skip errors, eliminates interviewer bias and clerical error, makes randomization easy, automates data entry, and creates shorter turn around for data collection (Bradburn, Sudman, & Wasnick, 2004, p. 295).

Sources of response bias were reduced since there are no psychological threats or hostility. The survey clearly indicates that all teachers will not perform all tasks, lessening the possibility that they responded based on their perceptions of social desirability or prestige. The two agencies that sponsored the standards were not identified until the survey was over to reduce bias caused by associating the survey with SREB or NEA. The tasks could not be reflected, masking whether they are negative or positive, because they are all positive with one exception. Task number 3, “deliver content (written ‘lecture’)” is the single exception. This one “competency” is the direct opposite of the philosophy embedded in the SREB and NEA documents. This could not be done more frequently because of time constraints and demands on the attention of participants as well as the impossibility of masking intent. To reduce bias caused by order, routine, and fatigue, the number of scale points were kept to six or less; tasks were split as participants scrolled down on the page, assuring that scale labels were clearly visible at all times.

To test the internal validity of the survey, people with diverse backgrounds and viewpoints reviewed the survey before it was administered. Content validity was determined by the same panel of seven educators with backgrounds in secondary English, math, science, and social studies as well teacher education and online learning. A pilot study was conducted, using the same group of experts. Participants in the pilot study were asked to complete the web-based survey and provide feedback on problems with

navigation, directions, clarity, coherence, and length of administration. Revisions were made based on their suggestions. Revisions included typographical errors, formatting for ease of viewing, changing scale choices, and rewriting several items to improve clarity. Appendix 2 lists suggestions made by panel members. All suggestions resulted in revisions that were approved by the panel. The dissertation committee also made suggestions for revisions that were incorporated into a third version of the survey:

1. Delete *sometimes* as a choice on the frequency scale.
2. In the demographics section, specifically ask about area of certification and design experience.
3. Add a choice of non-credit continuing education courses in the demographic question about preparation for online teaching.
4. State that the survey is lengthy and ask participants to commit to the task as a professional service.
5. Combine frequency and importance scales on the same screen so that participants consider each competency only once.

Panel members approved the final version of the survey that was taken by participants.

The survey ends with these three open-ended questions: What strengths or weaknesses do you see in these two sets of online teaching standards? What specific experiences, qualities, or knowledge do you consider to be most important to success as an online teacher? What else do I need to know to understand what you feel is important to preparing and supporting online teachers? After analysis of the surveys, qualitative interviews were conducted with eight of the participants. Questions used for the

interviews and the interview protocol are discussed in the procedures section of this chapter. As Maxwell (2005) notes, “Your research questions identify the things that you want to understand; your interview questions generate the data that you need to understand these things” (p. 69). Analysis of the surveys helped to focus the interview questions as other issues emerged.

According to Bradburn and Sudman (1988), response effects should be minimal in the open-ended interviews because “respondents in general do not tend to lie about their opinions or behavior. . .and seem to enjoy a well-conducted interview in which they can talk about things of interest to them” (pp. 189-190). In addition, as Bradburn and Sudman point out, participation in these interviews was voluntary, and I approached respondents so that they knew I believe they had something important to say and wanted to give them an opportunity to make their views heard; these factors should also have reduced response effects.

I used partially structured interviews when I met with the online teachers because I wanted to be sure I got all relevant information while allowing participants to respond freely—without their feeling totally directed or my forgetting in the confusion of the conversation. I included probes on the interview protocol to assure that I did not fail to pursue leads that enabled me to get rich detail. I created possible interview questions and completed pilot interviews after analyzing the surveys and had interview questions in something approaching final form. (See Appendix 6 for specific questions.) In all of the survey instruments, I attempted to find a balance between structure for me and freedom for the respondents.

Procedures

Data collection. Three data collection procedures were used: background research into the four online schools, a survey questionnaire sent to 92 online teachers, and partially structured in-depth interviews with eight online teachers.

First, program directors from each of the four schools were contacted to accomplish three goals: (a) to request permission to include the school's online teachers in my study; (b) to discover resources that would help to develop a rich description of each virtual school—its formation, policies, students, and teachers and their preparation; and (c) to request that program directors forward an invitation to participate in the survey to their schools' online teachers. Understanding the context of each virtual school required the background information provided by answers to these ten questions:

1. What are the goals and philosophy of the online program?
2. How did the online program come into existence?
3. What geographic area does the online program serve?
4. What students (number, age, race, gender, discipline, reasons for taking courses) does the online program serve and how are students selected/rejected for eligibility?
5. If the online program is part of a school division, how many schools does the school system operate and what is the relationship between the online program and the school division?
6. How is the online program funded? What is the estimated cost per pupil?

7. What courses are offered, using what platform and pedagogical model? What is the source?
8. How are online teachers selected and prepared?
9. What duties do online teachers perform? Do they have other responsibilities in addition to online teaching?
10. How many online teachers does the online program currently have on staff?

First I searched online to see what I could discover from each online program's website. Then I emailed program directors in each school to discuss getting permission to ask teachers to participate in the survey and for suggestions of other sources of background information. I conducted interviews if questions about the online program could not be discovered in the online or print sources available or through email.

Second, online teachers from each of the four schools received email invitations to participate in the survey. Each of the four program directors agreed to forward these email invitations to their experienced online teaching staff in the fall of 2007. (See Appendix 3 for the basic email sent by program directors.) The first page of the online survey consisted of informed consent forms. Participants were also offered the opportunity to have a hard copy of the informed consent form if they preferred. (See Appendix 7.)

Third, I conducted qualitative interviews with two teachers from each school selected from the pool of teachers who indicated their willingness to be interviewed on the survey, based on the procedure described under *Participants*. I also used member checks for clarification.

I was careful to develop rapport with the program directors because they were, in effect, gatekeepers to my sources of information. The initial email requesting teachers' participation used a nondirective, yet professional approach that was close to natural conversation since "nearly all who refuse to cooperate do so within the first few seconds after initial contact. . . . If the prospective respondent agrees to participate immediately when the survey is introduced, only a very small percentage will withdraw their cooperation later" (Alreck & Settle, 1995, p. 144). Introducing the survey to teachers in a way that engaged their interest and support was critical to increasing the response rate—and improving the reliability and validity of the survey. I attempted to establish rapport with participants by recognizing their expertise and expressing my gratitude in the survey.

The online survey was available online from November 17 to December 20, 2007, at <http://vhs.gmu.edu/Evals/rsurveyindex.aspx>. (See Appendix 4 for the complete survey.) Hamman (1997) reports that respondents are less affected by matters like race, gender, etc. when approached online, which can minimize the hierarchical effect of interviews and surveys conducted in person (cited in Glesne, 2006); it is my hope that the anonymity of an online survey encouraged honesty in the respondents. Program directors were asked to forward a reminder (See Appendix 9.) provided as thanks and/or as a reminder to improve response rate.

Interviews were conducted wherever was most convenient for the participants—in homes, by email, by Skype, or by telephone—and were recorded on a digital voice recorder and transcribed verbatim with the exception of the one email response. The

interviews were partially structured, following an outline developed from the information emerging from the observations as well as the questions outlined in Appendix 6. Teachers were encouraged to speak about any topics they thought were important—whether they were on the outline or not. I asked additional questions about responses that demanded clarification or elaboration.

Data analysis. Survey data were entered in SPSS; survey sections were treated as scales with descriptors and frequencies providing summary data. Survey data related to frequency, importance, and standards were analyzed using descriptive statistics to compute means and standard deviations. Using both surveys and interviews assisted in triangulation.

For the qualitative data, I employed memos, coding, data display, and connecting strategies to identify interview themes; I compared themes to respondent characteristics to determine frequency of responses compared to respondent characteristics. Coding was also an important part of both data collection and analysis. Coding includes “(a) defining clear categories (codes), (b) organizing these into a more or less explicit structure, embodied in a ‘thesaurus’ or codebook, and (c) pairing of the codes with appropriate places in the database” (Miles & Huberman, 1994, p. 45). I employed these analytical strategies common to qualitative research:

- Affixing codes to a set of field notes drawn from observations or interviews
- Noting reflections or other remarks in the margins

- Sorting and sifting through these materials to identify similar phrases, relationships between variables, patterns, themes, distinct differences between subgroups, and common sequences
- Isolating these patterns and processes, commonalities and differences, and taking them out to the field in the next wave of data collection
- Gradually elaborating a small set of generalizations that cover the consistencies discerned in the database
- Confronting those generalizations with a formalized body of knowledge in the form of constructs or theories. (Miles & Huberman, p. 9)

To rule out the validity threats posed by qualitative data, I used several strategies suggested by Maxwell (2005). First, my involvement with the online teachers was long term. I interviewed participants and then conducted member checks with participants, giving me opportunity to “rule out spurious associations and premature theories” and to have a “greater opportunity to develop and test alternative hypotheses” (Maxwell, p. 110). Also, with three sources of information—background provided by documents, online sources, and program directors; surveys; and teacher interviews—this study has what Becker (1970) calls “rich data”—a “full and revealing picture of what is going on” (cited in Maxwell, p. 110). Verbatim records of all teacher interviews assured that I worked with what participants actually reported, not what I remembered as important during or after the interviews. The open-ended questions on the survey provided additional details from an even wider pool of online teachers. I searched for discrepant evidence. Interviews with teachers provided the opportunity to seek explanations for

irregularities identified in the survey as well as for problems with my analysis. During my analysis, I conducted “member checks” with teachers who were interviewed to get respondent validation about my data, my analysis, and my conclusions; having participants review my results assured that their perceptions were recorded accurately, making my results more credible.

Qualitative data analysis involves a system of developing categories or codes based on themes or patterns that emerge through the process of sorting, comparing, contrasting, and labeling themes. “Analysis is reached by differentiating and combining data retrieved based upon the reflections one makes about the information collected” (Miles & Huberman, 1994, p. 56). Miles and Huberman state that “analysis consists of three flows of activity: data reduction, data display, and conclusion drawing verification” (p. 21). Strauss and Corbin (1990) suggest that initial data from interviews be reviewed line by line. Beside each line or paragraph the researcher should generate categories or labels to describe the data. I used this method. After transcribing each interview, I reviewed and coded, filling in details of affect and nuance not available from the words alone, using my field notes and memos. I used constant comparison (Strauss & Corbin, 1990), alternating and interchanging analysis and data collection throughout the study—repeating the recursive process of sorting, comparing, contrasting, and labeling themes.

Finally, I compared the quantitative and qualitative results. Triangulation of surveys and teacher interviews offered some proof against validity threats but not conclusive proof. All three sources of information were dependent on self-report, and I

conducted the analysis, so each source of data may be plagued by the same biases and sources of invalidity, as Maxwell (2005) warns.

Limitations. There may be serious limitations to this study. While a survey measures responses from a group and can provide valuable demographic data and identify patterns, there may be sampling errors: perhaps my sample is not representative of online teachers. I conducted a sample survey rather than a sample of the whole population, so it may not be generalizable, may not have external validity. There may be concerns that the survey is delivered via the World Wide Web since limiting the sample to users of the Internet may not represent the population. However, in this instance, online teachers, by definition, must have constant access to the Web. Delivering the survey online is also appropriate in that it is the natural environment in which members of the target population perform their online teaching duties. Using convenience sampling has a negative effect on validity and reliability of the data, but the schools were the convenience sample while all online teachers were solicited as respondents. The sampling was also purposive in that the four schools represent different models for online schooling.

I may be unaware of other sampling and non-sampling “errors arising from the execution of the sample such as not getting enough responses or errors caused by other factors such as question wording” (Bradburn & Sudman, 1988, pp. 179-180). Since data collection and analysis are an iterative process, I was particularly alert to having my own biases taint the data. I may have ignored important variables. I may have made causal connections based on implicit but erroneous or uncertain assumptions. My theoretical

assumptions may have caused response effects or other non-sampling errors (Bradburn & Sudman, p. 183). My own experiences as an online learner, online teacher, and instructor of online teachers may have unpredicted effects on my collection and analysis of data. As Bradburn and Sudman warn, I may “have strong prior views about the potential outcomes and may analyze the data to confirm these views” (pp. 156-157).

Miles and Huberman (1994) suggest that the central question for qualitative research is this: How valid and reliable is the researcher as an information-gathering instrument? They argue convincingly that as a researcher, you can understand “little more than your own evolving mental map allows” (p. 38) and propose these markers of a good qualitative researcher-as-instrument:

some familiarity with the phenomenon and the setting under study; strong conceptual interests; a multidisciplinary approach, as opposed to a narrow grounding or focus in a single discipline; good ‘investigative’ skills, including doggedness, the ability to draw people out, and the ability to ward off premature closure. . . . Without these skills, presumably ‘grounded’ theory can turn out to be conceptual heavy-handedness, without the researcher’s even being aware of it. (p. 38)

I was constantly alert to my own position as a researcher-as-instrument since I may be the central limitation to this study.

Being an effective “instrument” requires other attributes. Glesne (2006) suggests that, to be successful, a researcher must be nondirective and “naïve,” a learner who gives up the assumption that she knows what respondents mean rather than asking them to

explain or elaborate. “Casting yourself as learner correspondingly casts the respondent as teacher. For many, this is a flattering role that enhances the respondent’s satisfaction with being interviewed. And when you are a learner, you get taught” (Glesne, p. 94). I constantly reminded myself that the data collection and analytical roles are recursive, that I should not fall into the trap of thinking once I have completed an activity the process is over. Emerson, Fretz, and Shaw (1995) remind us that reading, coding, and memoing are not discrete steps in analysis: “from reading comes coding and written memos which direct and redirect attention to issues and possibilities that require further reading of the same or additional fieldnotes” (p. 144). I patiently probed, as Glesne suggests, constantly seeking “more explanation, clarification, description, and evaluation” (p. 96). Finally, there are two subtle indicators that I tried to be alert to: making indications explicit in my notes and what Weiss (1994) calls markers, “passing reference[s] made by a respondent to an important event or feeling state” (p. 77). Markers “occur in the course of talking about something else” (p. 77) but should be picked up as soon as possible if the topic might be relevant to the study. “Letting the marker go will demonstrate to the respondent that the area is not of importance to you. . .[and that] you are only interested in answers to your questions, not the respondent’s full experience” (p. 77). In addition to being alert to nuances such as markers, I observed behavior. Even though I was taping interviews, I took note of gestures, expressions, and other body language that expresses feelings not picked up by a verbal recording when possible. I kept reminding myself of my own pedagogical prejudices: I believe in a constructivist classroom that includes problem-based, situated learning and authentic assessments; I believe that 21st century skills—

multi-modal skills, whatever we want to call them—are as critical to today’s students as reading and writing were to 19th century students.

Timeline

March – May 2007

- Complete first drafts of proposal
- Create and validate survey
- Get permission from schools to ask online teachers to participate
- Get permission from schools to conduct research
- Submit HSRB forms
- Defend proposal

June – December 2007

- Complete literature review
- Research schools
- Refine research methodology
- Collect data/administer online surveys
- Analyze surveys
- Revise teacher interview questions

January – February 2007

- Conduct and transcribe teacher interviews
- Analyze teacher interviews; compare to survey data
- Rework analysis of surveys
- Conduct member checks to limit bias

- Rework analysis of surveys and interviews
- Write conclusions and discussion

March 2008

- Revisit literature review
- Refine introduction, literature review, and methodology
- Defend dissertation

4. Research Findings

The purpose of this mixed methods study was to determine online teachers' perceptions of national standards for online teaching and the knowledge, skills, and dispositions they perceive to be important to their online teaching practice. Quantitative data were collected in three parts of an online survey instrument; each section was submitted separately online, and all participants did not complete all three sections. The first section included demographics, which were discussed in Chapter 3 as a way of describing the teachers in this sample and of determining how representative of the population of online teachers this sample is. These demographics cannot be attached to responses on any other parts of the survey.

The second section asked teachers to rate specific online teaching tasks for frequency and importance. These tasks were divided into five categories: written communication, pedagogy, technology use, course design, and course management. The final section asked about the importance of specific national standards for online teaching. Qualitative data were collected through three open-ended questions on the survey and through interviews with eight participants, two from each school.

Each of the four research questions will be addressed separately in this chapter. In keeping with a mixed methods approach, the researcher will analyze quantitative data

first, then qualitative data, and then compare the findings of the two methods when appropriate.

Research Question 1

How do online teachers rate the importance of specific existing online teaching standards to their online teaching practice? To address this question, participants were asked to rate two sets of teaching standards on their importance to their own online teaching practice, using a 6-point semantic differential scale ranging from *Extremely Unimportant* to *Extremely Important*. (See Figure 3.4.) Standards 1 had 12 items based on national online teaching standards published by NEA (2006); Standards 2 had 11 items based on published SREB (2006b) national standards for online teaching. All standards related to content and licensure were omitted. The standards were labeled Standards 1 and Standards 2; sources of the standards were not identified until participants had completed the survey. The NEA and SREB documents are available online and are given in Appendix 10. Additionally, participants were asked this question: Which of the two sets of standards you just evaluated *better* summarizes what online teachers should know and do?

Using *SPSS 14.0 for Windows*, the researcher ran descriptive statistics for each set of standards. Table 4.1 presents a summary of the mean for teachers' perceptions of the importance of the NEA and SREB standards. Figure 4.1 presents a bar graph representation of these same scores. Since the variations are narrow, this graph format makes differences more apparent. (See Appendix 11 for complete results.)

Table 4.1

<i>Importance of National Online Teaching Standards, Using a 6-Point Scale</i>					
	School 1 <i>n</i> = 5	School 2 <i>n</i> = 9	School 3 <i>n</i> = 22	School 4 <i>n</i> = 7	Total <i>n</i> = 43
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
NEA Standards	5.03	5.12	5.34	5.62	5.28
SREB Standards	4.76	4.87	5.21	5.57	5.14

Participants reported both sets of standards as being important; total scores for each school were above 3, the midpoint on the 6-point scale. Participants from all four schools perceived the SREB standards to be of slightly less importance than the NEA standards. From School 1, 40% preferred NEA; 55.6% preferred NEA from School 2; 54.5% preferred NEA from School 3; and 57.1% preferred NEA from School 4. School 4, which has adopted the SREB standards, had the least variation (0.05) between total scores for NEA and SREB standards. School 2, which has also adopted the SREB standards, had a 0.25 variation in favor of the NEA standards. Schools 1 and 2, which have not adopted any national standards, had respective variations of 0.27 and 0.13 in favor of the NEA standards.

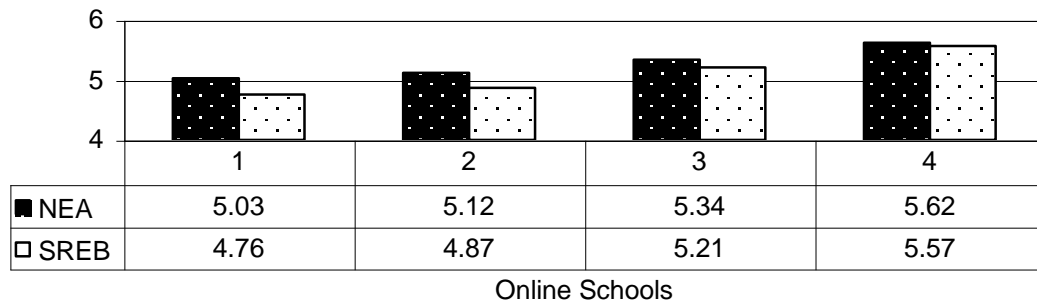


Figure 4.1. Importance of national online teaching standards. Scale 1-6

Standards 1 (NEA). The individual NEA standard receiving the lowest rating (4.49) was number 5: “Foster community-building virtually and facilitate collaborative learning.” The second lowest was number 8: “Are able to use adaptive technologies to meet individual student needs.” The individual NEA standard receiving the highest rating (5.67) was number 3: “Are student-centered and flexible, while maintaining high standards”; the next highest (5.64) was number 2: “Are motivated self-starters who work well without constant supervision.” Table 4.2 presents means for selected individual NEA standards by school. Figure 4.2 presents the total means in bar graph form. (See Appendix 11 for complete results.)

Table 4.2

<i>Importance of Selected National Standards 1 (NEA)</i>					
Item	School 1 <i>n</i> = 5	School 2 <i>n</i> = 9	School 3 <i>n</i> = 22	School 4 <i>n</i> = 7	Total <i>n</i> = 43
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
2 Motivated self-starters	6.00	5.33	5.69	5.71	5.64
3 Student-centered, flexible	5.80	5.44	5.77	5.57	5.67
5 Foster community & collaboration	4.00	4.89	4.32	5.14	4.49
8 Use adaptive technology	4.60	5.22	4.73	5.57	4.98
Total	5.03	5.12	5.34	5.62	5.28

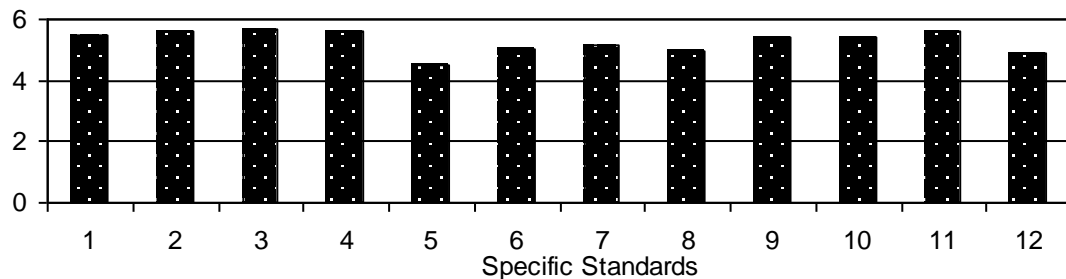


Figure 4.2. Importance of Standards 1 (NEA) by specific standard. Scale 1-6

Standards 2 (SREB). The SREB standard with the lowest rating (4.62) was number 11: “Demonstrate competencies in using data and findings from assessment and other data sources to modify instructional methods and content and to guide student learning.” The second lowest was number 2: “Have completed professional development

specifically geared to teaching online.” The individual SREB standard receiving the highest total rating (5.69) was number 5: “Provide online leadership in a manner that promotes student success through regular feedback, prompt response, and clear expectations”; the next highest (5.62) was number 1: “Are effective in written communications.” Table 4.3 presents means for selected individual SREB standards by school. Figure 4.3 presents the total means in bar graph form. (See Appendix 11 for complete results.)

Table 4.3

<i>Importance of Selected National Standards 2 (SREB)</i>					
Item	School 1 <i>n</i> = 5	School 2 <i>n</i> = 9	School 3 <i>n</i> = 22	School 4 <i>n</i> = 7	Total <i>n</i> = 43
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
1 Effective at written communication	5.80	5.11	5.68	6.00	5.62
2 Prof. dev. for online teaching	2.80	4.56	5.18	4.71	4.73
5 Feedback, response, expectations	5.80	5.11	5.86	5.86	5.69
11 Use data from assessments to modify	4.00	4.44	4.63	5.57	4.62
Total	4.76	4.87	5.21	5.57	5.14

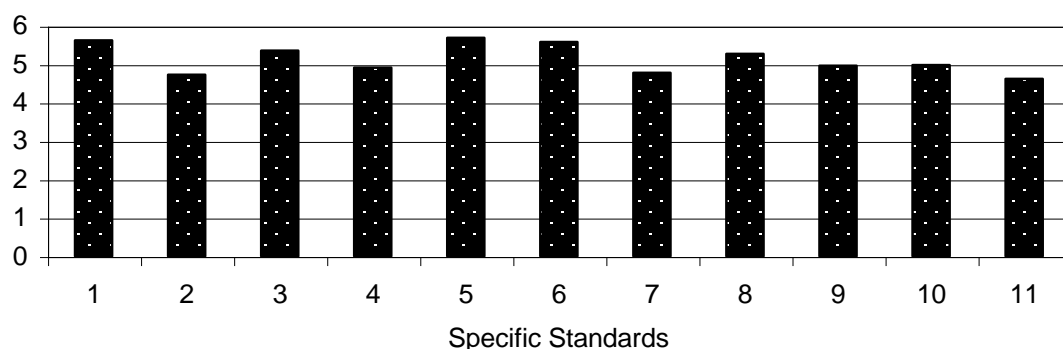


Figure 4.3. Importance of Standards 2 (SREB) by specific standard. Scale 1-6

Examination of scores for individual standards by school reveals that all standards were perceived to be important (above 3 on the scale) by all schools except for two standards by School 1, both of which relate to professional development for online teaching: NEA standard 12, “Have completed professional development specifically geared to teaching online,” and SREB standard 2, “Have completed professional development specifically geared to teaching online,” received a rating of 2.80. While the overall ratings for these two standards were below 3, in the lower half, 86.% of participants from School 1 rated NEA standard 12 as important (77.8% rated it at 5 or 6), and 84.5% rated SREB standard 2 as important (73.4% rated it at 5 or 6). Analysis of the frequency of individual responses for these two questions is reported in Table 4.4.

Table 4.4

Responses for Standards Relating to Preparation for Online Teaching from School 1

	Extremely Unimportant 1		2		3		4		5		Extremely Important 6	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
NEA Standard 12	2	4.4	4	8.94	0	0.0	4	8.9	16	35.6	19	42.24
SREB Standard 2	2	4.44	4	11.14	0	0.0	5	11.1	17	37.8	16	35.6

Responses to both open-ended survey and interview questions were related to the importance of national standards. The standards section of the survey concluded with this open-ended question: What strengths or weaknesses do you see in these two sets of online teaching standards? Three participants from School 1 responded to this question (60%), four from School 2 (44.4%), twenty-one from School 3 (95.4%), and six from School 4 (85.7%). Coding revealed five themes: the language of the standards, the effect of teacher role and course model, differentiation between online and face-to-face teaching, being student-centered, dispositions and online presence.

Four respondents indicated that the language of the standards was perceived as critical to their effectiveness, but they disagreed on which language was preferred. One preferred Standards 1 because they “are much easier to understand and clearer in their intent.” Another respondent believed both standards had “similar intent” but preferred

Standards 2 because “national standards should be clear and concise, which the second set seems to be”; this respondent clarified by stating that the second standards specified precisely “what the online teacher must be doing” while the “phrase ‘are able to’ in Standards 1 seems to indicate a softer stance on what it is the online teacher should be doing.” A third respondent noted that “The second set of standards seems to be worded in a more comprehensive manner. These standards seem to more thoroughly sum up the role of an online teacher” while the standards listed in the first set were sometimes too specific and of uneven importance. A fourth respondent commented that “the first one seems to better identify a teacher who can be successful teaching online. The second set is also VERY wordy.” In an interview, one teacher commented that the standards are “teacher speak—very ambiguous. . .repetitive.” Another interviewee agreed that the standards are “truly repetitive. Even for validity’s sake, very repetitive.”

Nine respondents from Schools 1 and 3 perceived both sets of standards as ignoring differences in teachers’ roles in various course models. As one respondent put it, “because formats are different, online teachers may need quite varied skills; these standards do not seem to recognize that.” Specific concerns from respondents from both schools were standards that addressed fostering collaboration and designing courses. Three respondents objected to the inclusion of collaboration in the standards: “Collaborative learning rarely occurs in the way our courses are taught. Students aren’t in the same place,” noted a respondent from School 3; this sentiment was mirrored by a respondent from School 1 as well as another from School 3. Moreover, one stated, “I’m not sure collaboration is a necessary part of online instruction.”

Eight respondents said a weakness of the standards is their assumption that online teachers are also online course designers even though many online teachers are teaching classes developed by others. As one put it, “I don't think an online teacher must have developed the curriculum in order to appropriately facilitate online learning.” Another stated that “the instructor should not necessarily be responsible for developing the course or the assessments unless he/she is paid to do so.” One interview participant said that her school uses mostly a “purchased program through STARS that was basically—almost everything was graded already; you really just had to follow along to make sure they were doing things like they were supposed to be, no grading involved.”

A respondent from school 4 stated that the standards need to be more specific in their requirements for professional development: “The professional development needs to reflect the type of teacher - beginning online teacher vs. experienced online teacher now doing content design. Plus, content design needs to be more than a Word document filled with notes. Interactivities are HUGE in the f2f [face-to-face] classroom as well as the online classroom.”

Respondents from Schools 2 and 3 preferred specific standards based on their differentiation between online and face-to-face teaching and their alignment with their own beliefs about teaching. Three made comments such as “Standard 2 looks like it was pulled from face-to-face standards with very little modification” while “Standard set 1 is written in such a way as to accurately reflect teaching and working in an online environment.” Two respondents stated that Standards 1 “covers more of the important parts of being a successful online teacher” and “seems more conceptual and more

appropriate.” Another preferred Standards 1 because it “mentions sense of humor, flexibility with students, self-starters; the second [set] seems more staid and less ‘real.’” One respondent preferred Standards 2 because of its approach to teaching “in an analytical and reflective way that aligns with the National Board for Professional Teaching Standards.”

Three respondents from Schools 3 and 4 stated that being student-centered was a strength of both sets of standards. Two specifically preferred Standards 1 because they were “more student oriented” while the second standards were “more data driven, competency based” and “more technologically centered.” One respondent felt that “it is extremely difficult to know about and deal with individual needs in an online environment, and it would add an unreasonable burden to the online instructor.” Six comments addressed a need for standards to represent the human elements of online teaching such as flexibility, humor, motivation, and online presence.

Three respondents expressed a preference for Standards 1, which recognizes “the value of online presence,” the ability to “present their personalities across to the students,” and “relates more to the teacher as a person, with emphasis on the teacher - student relationship. Standards 2 appears to be oriented more toward technical/professional issues and is not as human relationship oriented.” As one noted, “Understanding of the content and the ability to connect with students with empathy and guidance are key components to their success.” One expressed disappointment that “the standards fail to mention the importance of being able to help students set goals and stay on track. This is something that students have trouble with.” Another respondent

described dispositions perceived as critical to online teaching that are missing from the standards: “The motivation to teach seems to be left out. Online teachers must enjoy teaching students and interacting on a one-to-one basis. They must be encouragers and willing to answer the same question 100 times. They must also be sympathetic to technological fears and issues their students may have. Online instructors must also be open to new technologies and advancements and comfortable with change.”

The SREB standards (Standards 2) are used as an evaluation tool by Schools 2 and 4. Only two of the eight interview participants had heard of the SREB standards; both work for School 4. None of the teachers had heard of the NEA standards (Standards 1).

Six of the eight interview participants (75%) stated that having experienced online learning as a student is important to being an online teacher. Number 7 of the SREB standards, “Have experienced online learning from the perspective of a student,” was rated by 88% of participants in the survey as important, 86.6% rated it at 5 (22.2%) or 6 (64.4%). Three interview participants did not feel that experience as an online student is important; two of the three had not had any experience as online learners themselves. Both had been “thrown into” being online teachers with little preparation but had learned “by trial and error.” One participant felt that her daughter’s “horrible experience as an online student” made her “aware of the pitfalls” she wants to avoid as an online teacher. A third participant had had experience as an online learner but felt that being an adult online student was not essential to understanding how teenagers will be online: “it might be better to have your children be online students and observe them.” That same participant believed that being a course designer was more important to being a

successful instructor “because you know where everything is and understand the philosophy behind the course.”

Most interview participants felt that having experience as an online learner was quite important. One teacher, who works part time for School 2 and has applied for a job teaching online for a college, noted that both programs “are very interested that we have experience from the student’s perspective.” She felt that being an online student is important because “I know what it’s like to log on to a course and have no idea what to click on, where your assignments are, or where to put your work. I know what discussion boards are like—when they work well and when they don’t.” Another noted, “I can talk to my students and say, ‘This is what I went through.’ You learn a lot about yourself as a teacher and a student.” She also stated that teachers need to have taken courses with a grade and serious consequences, “not just professional development where you can sit back and ride it out.” Online teachers “should have to take an online course every so often to keep up to date and to remember what it is like not to know everything.” One participant, who had been successful in other online courses, told of having to withdraw from a course: “I just didn’t have my act together, wasn’t ready. I was an online teacher, and I thought this is ridiculous, but [online teachers] need to have that experience.”

Research Question 2

How do online teachers rate the frequency of use of specific knowledge and skills to their online teaching practice? Part 2 of Appendix 4, the online survey questionnaire used for this study, has a complete, numbered list of the specific tasks used for the rating. Questions 1-11 and 13-16 relate to written communication, questions 12 and 17-44 to

pedagogy, questions 45-56 to technology use, questions 57-65 to course design, and questions 66-76 to course management. Frequency was rated on a 4-point verbal frequency scale: 1 - never, 2 - rarely, 3 - often, and 4 - constantly.

Overall, the type of task with the highest score was course management (3.26), followed by pedagogy (3.18), written communication (2.96), technology use (2.93), and course design (2.74). (See Table 4.5; see Appendix 11 for complete results.) The frequency with which tasks are completed may vary depending on course model, and the four online schools surveyed have varying course models; therefore, it may prove useful to know what percentage of participants were from which school: School 1 represents 15.6% of participants; School 2 represents 24.4%; School 3 represents 44.4%; and School 4 represents 15.6%.

Table 4.5

<i>Frequency of Online Teaching Tasks, Using a 4-Point Scale</i>				
	School 1 <i>n</i> = 7	School 2 <i>n</i> = 11	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
Written Communication	2.76	3.00	2.80	3.26
Pedagogy	3.19	3.13	3.07	3.33
Technology Use	2.83	3.08 (<i>n</i> = 10)	2.62	3.19
Course Design	2.27	3.15 (<i>n</i> = 10)	2.15	3.37
Course Management	3.27	3.41 (<i>n</i> = 10)	3.05	3.30

The verbal frequency scale used for course management tasks went from 1) *never* to 4) *always* while the scale used for the other categories of tasks went from 1) *never* to 4) *constantly*. The scale used for course management tasks, which were often completed only once per course, represent policy rather than true frequency. All schools reported above 3, the midpoint representing *often* or *always/constantly*, for course management and pedagogy tasks. Schools 1 and 3 reported below midpoint in frequency for written communication, technology use, and course design. The biggest discrepancy between schools was between Schools 1 and 3 and Schools 2 and 4 for course design. There was at least a one point difference between Schools 1 and 3 and Schools 2 and 4. (See Figure 4.4.)

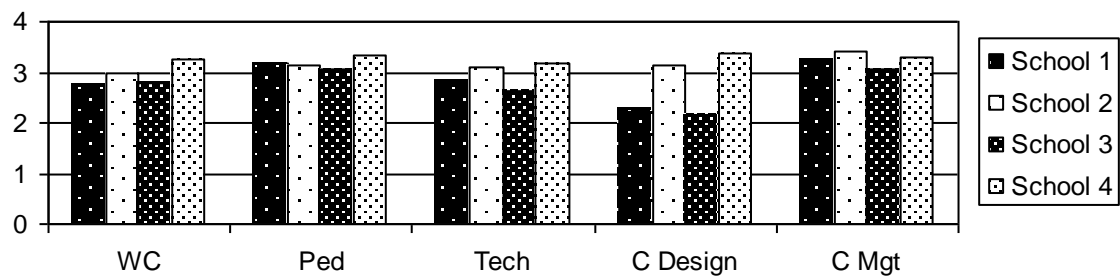


Figure 4.4. Frequency of online teaching tasks. Scale 1-4

Written communication. Written communication was rated the third most frequently performed type of task overall. Task 3, Deliver content (‘written lectures’), received ratings below 3 by all schools. Using lectures, including “written lectures,” is not a recommended instructional method; the phrase should have been removed from the task to make it conform to the other tasks, which all represent best practices. (See

Appendix 1, number 3, for a more complete discussion of this task.) Tasks 4, 5, 6, and 7 relate to facilitating collaboration, virtual community building, and synchronous or asynchronous chats; all schools except School 4 rated those tasks below 3. (See Figure 4.5 and Table 4.6; see Appendix 11 for complete results.) Students in School 3 work alone at their own pace, and most students in School 1 also work alone, so collaboration is impossible. If we eliminate tasks 3-7, which are related to lectures and collaboration, the total for written communication is 3.49, higher than all other types of tasks.

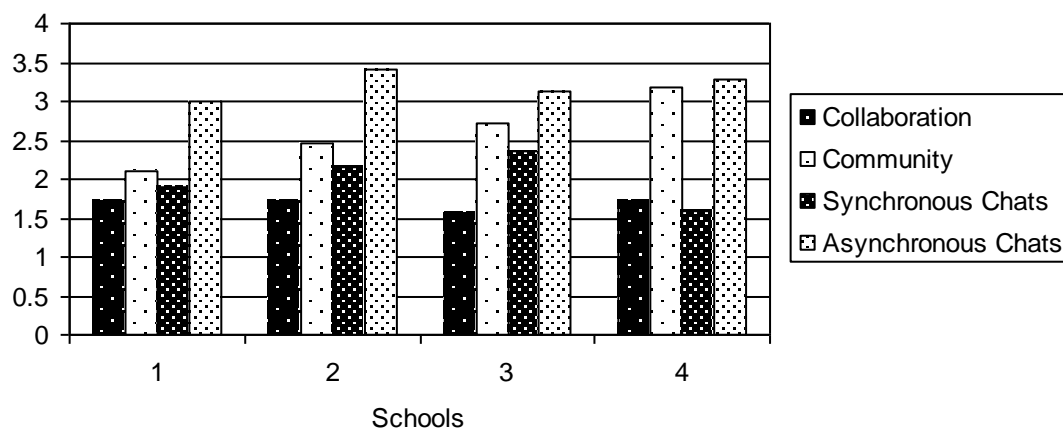


Figure 4.5. Frequency of written communication tasks 4-7 by school. Scale 1-4

Table 4.6

<i>Frequency of Selected Written Communication Tasks</i>					
Item	School 1 <i>n</i> = 7	School 2 <i>n</i> = 11	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7	Total <i>n</i> = 45
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
3 Deliver content 'lectures'	1.86	2.91	2.25	3.14	2.49
4 Facilitate collaboration	1.71	2.09	1.90	3.00	2.09
5 Facilitate community	1.71	2.45	2.15	3.42	2.36
6 Fac. synchronous chats	1.57	2.73	2.35	3.14	2.44
7 Fac. asynchronous chats	1.71	3.18	1.60	3.29	2.27
13 Demonstrate netiquette	4.00	3.80	3.65	3.86	3.77
14 Teach netiquette	3.29	2.60	2.55	3.29	2.80
15 Model written comm.	4.00	3.90	3.85	3.57	3.84
16 Teach written comm.	3.00	2.60	2.55	3.29	2.75
Total	2.76	3.00	2.80	3.26	2.91

Participants from all schools reported performing these tasks often or constantly: provide feedback (97.8%), answer questions (97.7%), facilitate individual participation (97.7%), facilitate connection/motivation (100%), create specific tone (97.8%), maintain teacher presence (83.2), demonstrate netiquette (97.7%), and model communication (100%). (See Table 4.7.)

Table 4.7

Percentage of Specific Responses for Selected Written Communication Tasks

Task	Never	Rarely	Often	Constantly
1 Provide feedback	0.0	2.2% *	26.7%	71.1%
2 Answer questions	0.0	2.2% *	24.4%	73.3%
8 Facilitate individual participation	2.2% *	0.0	33.3%	64.4%
9 Foster connection/motivation	0.0	0.0	42.2%	57.8%
10 Create specific tone	0.0	2.2% *	35.6%	62.2%
11 Maintain teacher presence	0.0	6.8%	22.7%	70.5%
13 Demonstrate netiquette	0.0	2.3%	18.2%	79.5%
14 Teach netiquette	4.5%	36.4%	34.1%	25.0%
15 Model communication skills	0.0	0.0	15.9%	84.1%
16 Teach communication skills	2.3% *	38.6%	4.09%	18.2%

Note: *This represents a response from only 1 participant.

Pedagogy. Pedagogy is the category with the least discrepancy among schools. (See Figure 4.4.) The highest rating for pedagogical tasks was from School 4 (3.33) and the lowest was from School 3 (3.07), a 0.26 difference. (See Table 4.8; see Appendix 11 for complete survey results.) The task with the highest score by Schools 1, 2, and 3, as well as the highest overall score, was for evaluate student products (3.89). School 4's highest score was for evaluate student progress. The lowest overall score was use essays to assess student progress (2.44); this was also the lowest score for Schools 2 and 3. The

lowest score for School 1 was adapt instruction to meet individual needs; two tasks tied for lowest score for School 4: guide student creativity and model use of resources.

Table 4.8

<i>Frequency of Selected Pedagogy Tasks</i>					
Item	School 1 <i>n</i> = 7	School 2 <i>n</i> = 11	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7	Total <i>n</i> = 45
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
18 Evaluate progress	4.00	3.90	3.85	3.86	3.89
22 Use essays to assess progress	3.14	2.50	1.95	3.00	2.44
25 Guide creativity	2.43	3.09	3.50	2.86	2.71
31 Foster info. skills	2.71	2.60	2.85	3.29	2.82
34 Model use of sources	3.00	2.60	2.90	2.86	3.07
39 Adapt to meet needs	2.14	3.30	2.50	3.29	3.20
41 Create valid, reliable assessments	2.71	3.20	3.60	3.43	2.84
Total	3.19	3.13	3.07	3.33	3.14

Three schools reported foster information use skills at less than 3 (*often*), the midpoint. Eight pedagogical tasks were rated below 3 on frequency by two schools: use essays to assess progress, use Q & A for informal assessment, guide student independence, guide student creativity, electronically track progress of course, teach use of resources, adapt to meet individual needs, and contact other school personnel. Schools

1 and 2 rated eight tasks below 3. School 3 rated eleven pedagogical tasks below the midpoint on frequency. School 4 rated only two pedagogical tasks below midpoint: guide creativity and model use of resources (2.86). (See Table 4.8; see Appendix 11 for complete results.)

One participant from School 1 reported never performing each of these pedagogical tasks: guide student creativity; foster information use skills; foster technology skills; use electronic tracking to assess course (another single participant reported *rarely* for this task); model use of resources; foster use of resources; administer valid, reliable assessments; adapt instruction to meet individual needs; and adapt instruction based on student performance. All participants reported performing these pedagogical tasks often or constantly: guide student time management (91.1%); evaluate student participation (91.7%); evaluate student products (100%); evaluate student progress (100%); guide conceptual understanding (97.7%); stimulate student engagement (93.1%); model use of resources (77.3%); and create valid, reliable assessments (70.5%). (See Table 4.9; see Appendix 11 for complete survey results.)

Table 4.9

<i>Percentage of Specific Responses for Selected Pedagogy Tasks</i>				
Task	Never	Rarely	Often	Constantly
12 Guide student time management	0.0	8.9%	57.8%	33.3%
17 Evaluate student participation	0.0	9.3%	34.9%	55.8%
18 Evaluate student products	0.0	0.0	11.4%	88.6%
19 Evaluate student progress	0.0	0.0	20.5%	79.5%
29 Guide conceptual understanding	0.0	2.3%	50.0%	47.7%
30 Stimulate student engagement	0.0	6.8%	63.6%	29.5%
31 Foster information use skills	2.3%*	27.3%	56.8%	13.6%
34 Model use of resources	2.3%*	20.5%	45.5%	31.8%
41 Create valid, reliable assessments	13.6%	15.9%	43.2%	27.3%
*This represents a response from only 1 participant.				

Technology use. Technology use is the task category with the third highest (2.93) rating. (See Table 4.5.) Use of particular programs ranged from a high (4.00) with email to a low (2.84) with spreadsheets. All schools reported using email at 4.00; the lowest rating (1.86) was for using presentation software by School 1. Providing technical assistance to students was rated below midpoint by all schools: basic software support (2.52), basic hardware support (1.88), and refer to technology professionals (2.18). (See Table 4.10; see Appendix 11 for complete results.)

Table 4.10

Frequency of Selected Technology Use Tasks

Item	School 1 <i>n</i> = 7	School 2 <i>n</i> = 10	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7	Total <i>n</i> = 44
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
45 Give software support	2.57	2.70	2.30	2.86	2.52
46 Give hardware support	2.14	2.20	1.53	2.14	1.88
47 Refer to tech experts	2.29	2.10	1.95	2.86	2.18
49 Use spreadsheets	2.71	2.90	2.80	3.00	2.84
50 Use pres. software	1.86	3.60	3.10	3.71	3.11
52 Use email	4.00	4.00	4.00	4.00	4.00
Total	2.83	3.08	2.62	3.19	2.86

Participants reported never or rarely providing software support (59.1%), hardware support (79.1%), or referring to technology experts (72.7%). (See Table 4.11; see Appendix 11 for complete results.) The overall rating for using course management systems was 2.37, representing a spread of over 1 point between schools. School 1 (2.00) and School 3 (1.42) reported low frequency while School 2 (3.70) and School 4 (3.43) reported high frequency of use of course management systems.

Table 4.11

Percentages of Specific Responses for Selected Technology Use Tasks

Task	Never	Rarely	Often	Constantly
45 Give software support	6.8%	52.3%	22.7%	18.2%
46 Give hardware support	37.2%	41.9%	16.3%	4.7%
47 Refer to technology experts	13.6%	59.1%	22.7%	4.5%
52 Use email	0.0	0.0	0.0	100.0%
56 Use CMS or LMS	39.5%	18.6%	7.0%	34.9%

Course design. Course design is the task with the lowest rating. (See Table 4.5.)

Schools 1 and 3 gave low ratings for course design tasks—below the midpoint of 3.

Participants from Schools 2 and 4 rated frequency of course design clearly above the midpoint. (See Table 4.12.) School 1 rated all design task frequencies at *never* or *rarely* (1 or 2) except review course documents for accuracy and currency (3.43) and review course materials for alignment with course objectives or state and/or local standards (3.00). School 3 rated all tasks at *never* or *rarely* except for review course documents for accuracy and currency (3.10). Most School 1 courses are purchased. Most teachers in School 3 have designed courses, but design is not a teaching responsibility. (See Table 4.12; see Appendix 11 for complete results.)

Table 4.12

Frequency of Selected Course Design Tasks

Item	School 1 <i>n</i> = 7	School 2 <i>n</i> = 10	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7	Total <i>n</i> = 44
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
57 Review courses for accuracy & currency	3.43	3.40	3.10	3.57	3.30
62 Create new courses	1.83	2.70	1.45	3.43	2.12
63 Upload new courses	1.00	2.40	1.35	2.29	1.70
64 Review for alignment	3.00	3.40	2.05	3.57	2.74
Total	2.27	3.15	2.15	3.37	2.60

Schools 2 and 4 gave high ratings for design tasks. School 2 rated all design tasks at *often* or *constantly* (3 or 4) except for create content for new courses (2.70) and upload new courses to the Internet (2.40). School 4 rated all design tasks at *often* or *constantly* except for upload new courses to the Internet (2.29). Review documents for accuracy was the only task that all participants reported having performed.

A few teachers in School 1 design courses, but most do not. All courses in School 3 are created by content specialists as part of graduate courses—and most School 3 teachers have been part of this program, but course design is never a part of online teachers' responsibilities. Eliminating School 3 increases the number of participants who responded *often* or *constantly* to course design tasks by between 10% and 24.8%: 69.5% reported incorporating multimedia and visuals often or constantly. Excluding School 3,

78.2% reported modifying or designing assessment often or constantly; 56.5% reported creating content for a new course often or constantly; 34.8% reported uploading a new course often or constantly; and 78.3% reported revising courses for alignment with objectives and standards. (See Table 4.13; see Appendix 11 for complete results.)

Table 4.13

Percentages of Specific Responses for Selected Course Design Tasks
Including School 3

Task	Never	Rarely	Often	Constantly
60 Incorporate multimedia & visuals	14.3%	26.2%	33.3%	26.2%
61 Modify or design assessments	14.0%	27.9%	37.2%	20.9%
62 Create content for new course	41.9%	23.3%	16.3%	18.6%
63 Upload new course to the Internet	60.5%	16.3%	16.3%	7.0%
65 Revise course for alignment	25.6%	20.9%	30.2%	23.3%
Without School 3				
60 Incorporate multimedia & visuals	13.03%	17.42%	30.4%	39.1%
61 Modify or design assessments	8.7%	13.0%	47.8%	30.4%
62 Create content for new course	17.4%	26.1%	26.1%	30.4%
63 Upload new course to the Internet	43.5%	21.7%	26.1%	8.7%
65 Revise course for alignment	8.9%	13.0%	43.5%	34.8%

Course management. Course management is the task category with the highest overall rating; however, three management tasks were performed never or rarely overall: track registration (2.26), assess readiness for content (2.28), and assess readiness for delivery model (2.23). School 1 reported tracking registration at 3.17, which is above the midpoint; with that exception, all four schools reported less than 3 in those specific registration and assessment tasks. Unlike the other three schools, School 3 participants did not report high ratings for maintaining records of communication with students (2.95). All four schools primarily use email to communicate with students, and administrators in all four programs have access to teachers' email records. Course management ratings may be affected by the fact that they were rated on a scale of 1-4 from *never* to *always*, rather than *never* to *constantly*. (See Table 4.14; see Appendix 11 for complete results.)

Table 4.14

<i>Frequency of Selected Course Management Tasks</i>					
Item	School 1 <i>n</i> = 7	School 2 <i>n</i> = 10	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7	Total <i>n</i> = 44
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
66 Track registration	3.17	2.60	1.85	2.14	2.26
67 Assess readiness for course content	1.50	2.80	2.25	2.29	2.28
68 Assess readiness for delivery method	1.33	2.50	2.30	2.43	2.23
71 Maintain records of communication	4.00	3.80	2.95	3.71	3.89
Total	3.27	3.41	3.05	3.30	3.25

Although 37.2% report never tracking registration, 27.9% report never assessing readiness for content, and 25.6% report never assessing readiness for the delivery method, most teachers from all schools reported completing these course management tasks often or always: state teacher response times (95.5%), maintain record of communication (97.7%), explain course organization (93.2%), give procedures and grade criteria (97.7%), give interaction expectations (100%), give behavior expectation (81.4%), and give objectives and outcomes (92.8%). (See Table 4.15; see Appendix 11 for complete results.)

Table 14.15

<i>Percentage of Specific Responses for Selected Course Management Tasks</i>				
Task	Never	Rarely	Often	Always
66 Track registration	37.2%	20.9%	20.9%	20.9%
67 Assess readiness for content	27.9%	30.2%	27.9%	14.0%
68 Assess readiness for delivery	25.6%	37.2%	25.6%	11.6%
71 Maintain record of communication	0.0	2.3%	6.8%	90.9%

No survey questions were related specifically to this research question. In interviews, respondents commented on online teaching tasks, but it is difficult to determine whether their comments relate to the frequency or the importance of specific tasks; an individual comment can refer to both. Since the majority of interview

participants' comments pertain to the importance of tasks, all interview comments related to online teaching tasks are discussed under research question 3.

Research Question 3

How do online teachers rate the importance of specific knowledge and skills to their online teaching practice? On a 6-point semantic differential scale, all task categories were rated at 4 or higher, above the midpoint, based on their importance to participants' online teaching practice. Written communication was rated fairly equally (within a variation of .03 points) by three schools; School 4 rated it 0.58 points higher. School 4 gave the highest ratings in all categories except for course management; the highest rating for that was by School 1. School 1 gave the lowest rating for written communication. School 3 gave the lowest rating for course design. School 2 reported the lowest scores for all other categories: pedagogy, technology use, and course management. Overall, participants from all four schools rated the importance of various categories of teaching tasks in this order: highest course management (5.34), followed by pedagogy (5.17), course design (4.92), technology use (4.84), and written communication (4.61). (See Table 4.16 and Figure 4.6.) See Part 2 of Appendix 4, the online survey questionnaire used for this study, for a complete list of specific tasks by number.

Table 4.16

<i>Importance of Online Teaching Tasks, Using a 6-Point Scale</i>				
	School 1 <i>n</i> = 7	School 2 <i>n</i> = 11	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
Written Communication	4.43	4.49	4.46	5.04
Pedagogy	5.25	4.90	5.10	5.42
Technology Use	4.87	4.54 (<i>n</i> = 10)	4.55	5.38
Course Design	4.72	5.08 (<i>n</i> = 10)	4.38	5.48
Course Management	5.60	5.01 (<i>n</i> = 10)	5.28 (<i>n</i> = 19)	5.48

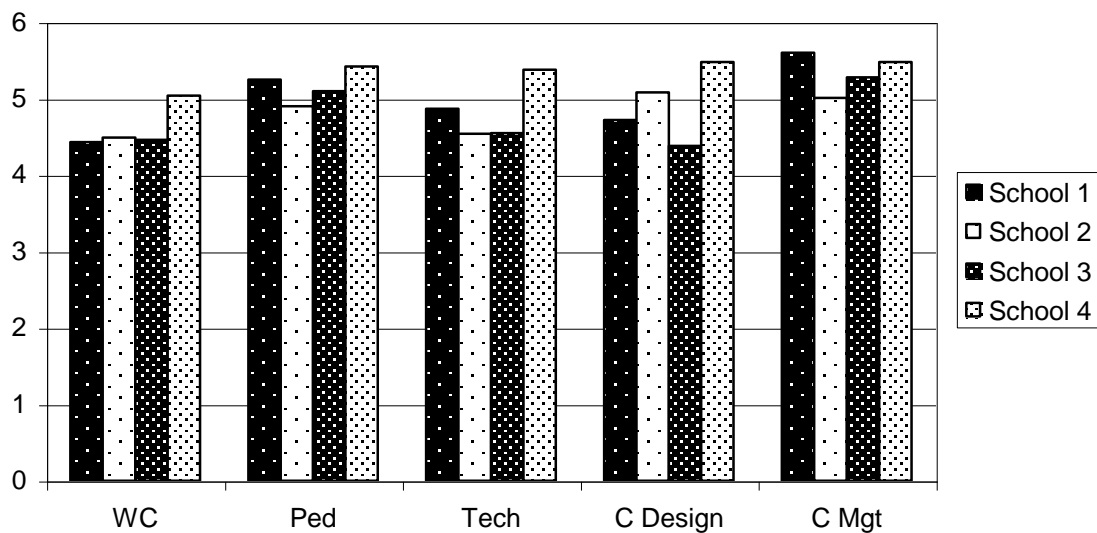


Figure 4.6. Importance of Online Teaching Tasks. Scale 1-6

Participants commented on the importance of online teaching tasks in the open-ended survey and in interviews. Survey responses will be discussed first. Responses to the open-ended survey question of the experiences, qualities, or knowledge that are most important to being successful as an online teacher revealed these themes: communication skills, assessment of and adjustment to meet student needs, technology skill and policies, teacher roles, dispositions, preparation for classroom teaching, and preparation for online teaching. Three teachers from School 1 responded to the question (60%), four from School 2 (44%), twenty-one from School 3 (95%); and six from School 4 (86%). Their responses will be discussed as they relate to the specific categories of online teaching tasks that were used on the survey: written communication, pedagogy, technology use, course design, and course management. Themes that do not fit easily within one of these categories will be discussed under “other.”

Written communication. The following written communication tasks received ratings of 5 or 6: #1 provide feedback, #2 answer questions, #9 foster student connection and motivation, #10 create a specific tone, #11 maintain ‘teacher presence,’ #13 demonstrate netiquette, and #15 model written communication skills. (See Figure 4.7.) The following written communication tasks received ratings below 4, the midpoint: School 1 rated #3 deliver content (written ‘lectures’) at 3.57. Schools 1, 2, and 3 rated #4 facilitate collaborative learning at 2.71, 3.50, and 3.25. Schools 1, 2, and 3 rated #5 facilitate virtual community building at 2.86, 1.31, and 3.20. School 1 rated #6 facilitate synchronous chats at 2.86. Schools 1 and 3 rated #7 facilitate asynchronous chats at 3.29

and 2.70. (See Table 4.17; see Appendix 12 for complete results.) Note: Task #12 is a misplaced pedagogy task.

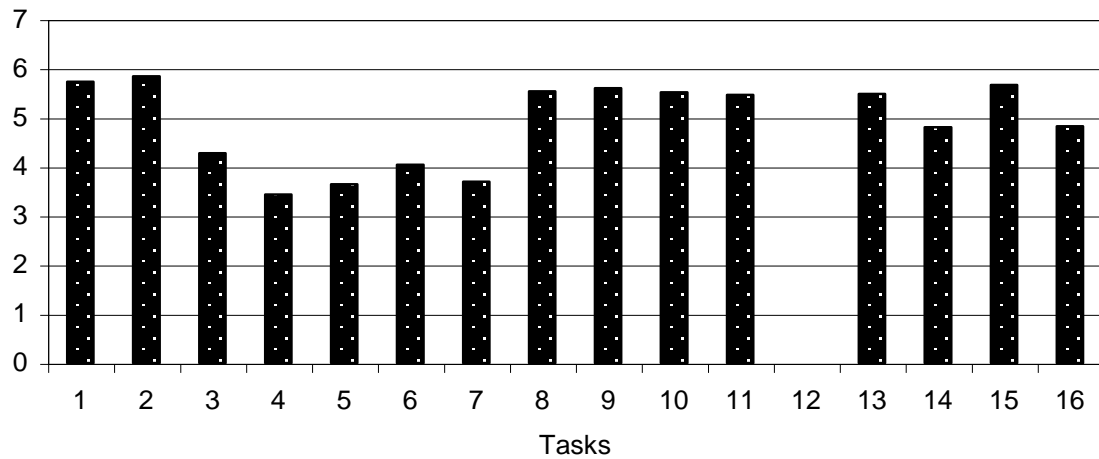


Figure 4.7. Importance of Written Communication Tasks, Scale 1-6

Table 4.17

<i>Importance of Selected Written Communication Tasks</i>					
Item	School 1 <i>n</i> = 7	School 2 <i>n</i> = 11	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7	Total <i>n</i> = 45
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
4 Facilitate collaboration	2.71	3.50	3.25	4.57	3.43
5 Facilitate community	2.86	1.31	3.20	5.29	3.64
6 Facilitate synchronous chats	2.86	4.18	4.10	4.86	4.04
7 Facilitate asynchronous chats	3.29	4.73	2.70	5.29	3.69
Total	4.43	4.49	4.46	5.04	4.59

Qualitative responses concerning written communication include three threads: skill at written communication, quick response time, and ability to project voice or online presence. Fourteen participants (33%) gave excellent written communication skills as important; as one participant noted, “written communication becomes a very important skill, since the online teacher creates his/her classroom climate in writing to a large extent.” Additionally, eight stated that fast response to student communication is critical; especially “with younger students, I feel it is important to be accessible almost on a constant basis to provide reassurance that the student is doing what is expected.” Four stated that projecting voice—and online personality—is important. Another listed “projecting and communicating positive and realistic expectations.”

Written communication is used for what is normally spoken in a face-to-face class—and leaves a permanent record. One interview participant said that online teachers at her school had been told to “think like a lawyer” before accepting papers or comments in a discussion board since everything is so transparent on the course management system her school uses. She said she tells her students, “Don’t put anything you don’t want parents or principals to read on this course. Whatever you put here, my admin is going to think I agree with.”

The advantage to this is that teachers can eavesdrop on discussions among students. “This is conversation you never get to hear, but you do get to see it online.” One of her students started a protest against the teacher’s stance about copyright violations, suggesting that her classmates submit really bad drawings in Paint to replace the images they could no longer pirate until the teacher got sick of it and relaxed her rule! It did not

work. The participant noted that you need to “know when they’re joking,” but it also needs to be apparent on the written record when *anyone* is joking.

Other communication challenges mentioned by interview participants are being misunderstood and not being able to connect with students. These responses are typical of their comments:

- “Be very careful of everything you write, knowing that it can easily be misinterpreted or misunderstood.”
- “Since students don’t see a facial expression, they don’t hear the *tone* of your voice unless you interject that into the writing. You’ve got to be careful how you word something because when you read something rather than hear it, there is more than one way to take it.”
- “I can’t be as sarcastic as I tend to be.”
- “Sometimes I put a smiley face, meaning ‘ I want you to do this, but I’m not fussing with you.’”
- “It’s hard to convey humor online. I always place phone calls first and get some humor across.”
- “I am younger and had to be very remote and careful in f2f classes. Online I can be more humorous, more playful, more relaxed, more honestly myself. I enjoy that.”
- “Students who have difficulty reading or who do not read carefully can often misunderstand whole modules and teacher comments. When this happens, usually the issues can only be clarified through a phone conversation.”

- “You can’t be sure of the mood, tone, personality, sense of humor, and interest of an online student.”
- “You can’t see glazed donut look—or tell when things aren’t working.”
- “You also have to deal with the email jargon and shorthand writing, which to me is annoying and prevents to some degree a real connection with students.”
- “Even though you are showing an interest in the students’ interests and activities, it’s hard to really connect to them the way you do in a classroom. At the same time, you end up clarifying things more and working harder to communicate effectively to students.”
- “Being that they’re from so many different schools and there are so many of them, and I don’t see their faces to make a personal connection on a day-to-day basis, I don’t feel like I know them as well.”

Another possible communication challenge is fast response. “Any delay of information can create problems with students and teachers online. If a student has asked a question and the teacher has not responded promptly or the teacher is waiting for assignments day after day, some challenges and misunderstandings can definitely arise.” Online teachers reported checking email at least three times a day, and one teacher suggested that online teachers “remember that you are dealing with a student at the other end of the computer, and they have the same needs and challenges as face-to-face students. Stay connected and respond promptly to students.” This need for speed can get absurd. More than one online teacher had a story about students emailing to ask if the

teacher had actually gotten an assignment or to ask why an assignment they had submitted minutes ago had not been graded and recorded yet.

Interview participants felt that in some ways they communicate better—or at least more intentionally—in an online environment.

- “I emphasize from the get go to moms, dads, kids, parents, you’re going to be in every one of my group email reminders until you tell me you don’t want to be in there any more. I place a lot of emphasis on good communication skills; that is a strength.”
- “I am available a ridiculous amount of time. It drives my husband crazy.”
- “In regular school, mom and dad come to back-to-school night, but parents don’t know what’s going on until interim; whereas with this, they can always log in and look at the student’s online grade—the whole grade book.”
- “Once I build rapport, if they are quiet, then I can call and see what’s up if they go silent.”
- “Kids and teachers need to communicate. I see more teachers doing better at that online than in classrooms. Teachers think they will say something the next day but forget. Online you don’t put it off.”
- “First thing when I get on in the morning I will send a quick little page with how was your weekend. I always bring it back to Latin, the same sort of conversation I would have when a child walks into my classroom, but it doesn’t happen naturally. I have to make myself do it.”

- “Even though it’s online, the work is still one-to-one because we communicate a lot through email.”
- “Some students are more comfortable online; there is no judgment based on appearance.”

Pedagogy. Totals for all pedagogical tasks were rated at 4 or higher; 20 of the 29 were rated at 5 or 6. All scores for individual tasks by individual schools were rated at 4 or higher except for use essays to assess student progress (3.40) by School 3; use essays had the lowest total rating (4.20) by all schools. The highest rating (5.82) for a specific task by all schools was evaluate student products (5.82), followed by evaluate student progress (5.70), guide understanding of concepts (5.53), and develop intervention plans for unsuccessful students. (See Table 4.18; see Appendix 12 for complete results.)

Table 4.18

<i>Importance of Selected Pedagogy Tasks</i>					
Item	School 1 <i>n</i> = 7	School 2 <i>n</i> = 11	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7	Total <i>n</i> = 45
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
18 Evaluate products	5.86	5.90	5.75	5.86	5.82
19 Evaluate progress	5.86	5.50	5.69	5.86	5.70
22 Use essays to assess progress	5.43	4.30	3.40	5.14	4.20
29 Guide understanding	5.43	5.00	5.75	5.71	5.53
42 Develop intervention plans	5.71	5.50	5.47	5.57	5.53
Total	5.25	4.90	5.10	5.42	5.13

Survey responses related to pedagogy included these threads: assessing students' ability and concerns, adjusting instruction, and providing active learning opportunities for students. Online teachers need to be "responsive to students with special needs," and, as two teachers put it, "be able to treat each student as if the student is getting one-to-one instruction." Not only must online teachers have "the ability to assess students' background knowledge and needs" and "students' learning styles," they must have "the ability to adapt curriculum to meet students' needs in connection to course content"; this requires an "understanding of online course structure, [and] enough confidence to adapt the course to meet specific needs of students." Two teachers stated that teachers must provide active learning for students; one of the two also included incorporating strategies to provide "interaction, participation, and collaboration in the online environment."

Interview participants' comments revealed these themes: communicating, assessing and addressing student abilities and concerns, variation in student roles, the advantages of the pedagogical model presented by many online courses, classroom discussion, meeting students' scheduling needs, and the importance of online learning to students' futures. All eight interview participants listed communication as an important pedagogical skill. One participant from School 3 said it can be difficult knowing "where to go next if you have problem with a child" because you "have no contact information or guidance office to turn to." A second interview participant said that getting in touch with a student who is not doing well or not completing work can be frustrating:

You can't get hold of them. If you're sitting in my classroom, I can stand in front of your seat until I've said my piece at least. If I call, the kid sees the ID and

won't answer. . . . If I leave a message, the parents think it's a telemarketer and don't reply to my message. Kids have blocks on their phones so unless they recognize the number, they won't accept the call—or they won't accept the call if they *do* recognize your number!

Several teachers reported having trouble communicating. “Getting into contact with parents and students? It's amazing how often phone numbers and email addresses change.” Another said, “Some of my students actually did Habitat for Humanity in Russia. They said they didn't have Internet. They sent *an email* from Russia saying they didn't have *computers* in Russia and couldn't do the course!”

Online classes pose different opportunities and challenges concerning assessing and addressing student abilities and concerns. One teacher reported that “these students, the majority of them, are so driven, your over achievers. They're determined they're going to get their credit this way, and they're going to do over and above what you expect them to do.” Other teachers reported having different kinds of students:

- “There's the occasional student who gets put in a course that really doesn't belong there. And it's probably due to a scheduling nightmare, and the counselor is really having a hard time. It might be a special needs student or something of that nature, and then I find that it's really difficult to do the course this way because the student that's been put in there really doesn't belong in this kind of setting.”
- “Seventy-five percent of the online students have failed and are trying to make up credit. I do have students who are trying to get ahead. Right now I have two

who barely passed and one getting ahead. It's better to work with struggling students online [than in the classroom] because they get more attention if they utilize that. They have a better chance of passing; I accept their work the entire semester whenever they turned it in, which I would not be able to do in a regular classroom. I am available to talk with them personally, which I can't always do in a regular classroom. The ones who have the hardest time are those with IEPs. They are used to having a co-teacher and resource rooms and all kinds of assistance, and they can't get that online."

- "More kids want to take it than they [the school district] have money for. Kids have to apply; the parent signs, the counselor signs, and the principal—it's supposed to help assure we get motivated students who can work 'without that daily contact.' It doesn't always work that way."
- "In some instances [an online class] has become the last resort before students drop out of school or go for GED. In other cases, it has helped kids in specialty schools who need more courses."
- "I think the most frustrating thing is when you have a student who will not complete the work or is enrolled in an online class but has significant difficulty in reading and writing. When they can't comprehend the modules or understand the work, you spend hours on the phone – which defeats the point of online learning and is more difficult than if you had them in a class room face-to-face."

- “Many students take online classes because they have moved here and need to make up a class or their schedules are a problem because of coming from a 4 X 4 school. I know what kids in my school are supposed to have had. When you work with students throughout the county or from other places, you don’t really know what you’re working with.”

Participants reported that student roles may differ in an online environment. One stated that “Since I am not there, kids somehow think that the rules are different. They will start a quiz and then email me, ‘I am going to finish it tomorrow because I don’t have time now.’ They would never do that in regular class—that it’s OK to do geometry now instead since Mrs. M. isn’t in the building. I had one kid who said, ‘This really isn’t my priority, so I am working on the classes that are.’ They wouldn’t be doing that in my classroom.”

Three teachers agreed, as one put it, that “students have a lot more responsibility online. They are required to read all their assignments, background information, and directions. There is no one there to give them oral commands or prompts. They are really on their own to figure out what is expected of them. I think this is a challenging role reversal for many high school students.” One of the three added, “It requires a certain level of independence and—hopefully with the way I have designed it—higher order thinking. The online students don’t have to do a lot of the standardized testing; it’s more about real learning and less about all the peripheral stuff.”

Many interview participants expressed approval that online courses offer students intentional, pedagogically sound instruction that can be one-on-one and is provided at times that suit students' learning needs. Below are sample responses:

- “Everything is more intentional, I think. Units are packed tightly. I never assign busy work to get a certain number of grades in my grade book or because I need to keep part of the class busy while I work with the ones who need more one-on-one attention. Everything is a means to an end.”
- “In online teaching, I can avoid a lot of the red tape and bureaucracy in the classroom—and all the things that take extra time but have nothing to do with teaching. I can focus on the kids.”
- “They need to talk about stuff to understand. I have them do activities at home, involve their family. Some parents ask, ‘Why do I have to be part of this?’ Others are glad to be involved for the first time since primary school.”
- “There are so many resources out there; you need to be creative; make real world connections—with things that really matter. It’s right there. Click on the *Washington Post*, and an article’s right there. It’s a lot easier than bringing in newspapers.”
- “I remember a professor in Foundations of Teaching saying people stood in front and others sat and listed and left with diploma. She was trying to get us *not* to lecture, but she did it herself. Online learning makes lecturing almost impossible.”

- “Teachers know when you opened a document, how long you spent reading it. Students have to study to pass. They might get by on multiple guess, but they won’t get by with the writing I require. That is a true assessment.”
- “Trying to cheat just makes us better at buffering it. If kids copy from each other, ask them to explain how they got it. They should learn from each other. In the business world, you would dialog and work together.”
- “I don’t plan an entire hour and a half online. I can differentiate assignments, but I am not trying to differentiate across an hour and a half for an entire class.”
- “It’s more student-centered rather than teacher-centered. They have to make it go because you’re not there with them. It’s not as easy for them to sit back and soak it in. They have to be an active participant in order to succeed.”
- “The online modules ask students to be very creative in their thinking and processing of historical concepts. I enjoy watching students understand history through their own research and reading.”
- “My students run the gamut. I have a couple of AP students that are brilliant and self-motivated and wonderful and have one girl who doesn’t have an official label, but I would be contacting the committee because she has learning disabilities if I had her in a face-to-face class. I have a couple of kids who can’t write a coherent English sentence. I have others that I read an essay and go, ‘Wow! I never thought of it that way. I need to save this.’ The great thing is the kid who is slower than slow doesn’t know that he isn’t doing what

the other students are. If he calls me and asks the most rudimentary question, he doesn't realize it. It is differentiating education on the most individual level. The really bright kid isn't embarrassed by being bright. He doesn't know that I am asking questions above what I would ask the rest of the class in Chapter 7. The student who doesn't know a noun from a verb in Chapter 7 can also ask really basic questions about anything, and I can ask him rudimentary questions without anyone realizing or feeling embarrassed."

- "One of the most fulfilling things is that each child, if they take advantage of the situation, has an individual course and individual tutor. They can pick up the phone. . . . They call me at 8 or 9 at night while working on their homework or on Sunday afternoons. How many children get to do that? You don't get to call your algebra teacher when you're stuck on # 4 and say, 'What the heck is going on with this?'"
- "I let my face-to-face students join our online review sessions if they need help when I am online with online kids. Instead of staying late to school, it makes more sense to come home and be available when they are actually doing their homework."

The use of class discussions varies from course to course and school to school.

Below are sample comments from interview participants:

- “In English classrooms, you have so much more opportunity for discussion. We don’t get that online. I know there are programs where you can have chats, but ours is not set up that way.”
- “I had an exam review and planned to include a discussion. Only one student showed up. I haven’t done group projects because with so few students it’s not worth it. In summer, class goes so fast, and students have lots going on so it’s hard for them to get together.”
- “I have not used that much group discussion as my students have mostly been at different places at different times.”
- “We use discussion boards. UVA [University of Virginia] wrote the course. It uses case studies. Students have to write resolutions to the case study. . . . I try to tie things in. I go in and change the articles to what is in the news this month. The AP students discuss—and get into squibbles. I have to referee. I use them a great deal.”
- “I do a lot of hands-on where they write on the white board, give me a green or red check mark if they do or don’t understand. Some of what we do is translated on Elluminate, which has audio. I will call on a student to translate, he then calls on another student to translate.”

In interviews, participants said that online courses were important for two reasons: because they allow schools to meet students’ scheduling needs and because they are the trend of the future, teaching students new skills and utilizing the skills they already have. Online courses help students to develop independence, creativity,

technology use skills, and information use skills. This is a sample of responses indicating the importance of meeting students' scheduling needs:

- “It is so exciting to be part of this new movement. I love the fact that we’re bringing these courses to kids who otherwise wouldn’t have access to them. The kids are wonderful. It’s interesting to have kids from all over the place.”
- “We have students doing special things or going to special schools. . . . This is an answer for them as well.” She had a student who worked around the country on motorcycle training, one in ballet school in Washington state, and one who moved back to Africa for the summer.
- “Most of my kids are from Virginia. One lives in Florida but goes to a Pittsburgh ballet school. The college she wanted to go to wouldn’t accept credit from an online school, so she dropped out. I have one from Texas who can’t get Latin in his home school.”
- “You know you do have some really cool stories [in the online health and PE class] because they have the ability to go out to do fitness. They go out and choose particular activities they really want to do, and you may have a student who was really intimidated about health and PE who goes out and really builds their self-confidence in weight training or starts to go to the gym with mom or dad, and it really becomes a meaningful experience.”
- “One of my students has an immune deficiency that keeps her at home most of the time. She wouldn’t be able to graduate without her online classes.”

This is a sample of responses related to the ways that online learning prepares students for the future:

- “These courses give them a taste of the online courses they will have in college. It helps them see what motivation they need to have when no one is standing over them.”
- “I think it provides opportunities for students to learn in ways that better meet their needs.”
- “They are getting better at selecting good sources and giving the source. They’re learning research.”
- “I feel like it’s preparing them more for college, giving them skills they will need in the real world, and using ones they’re already proficient with.”
- “They are going to learn their social skills in other places. . . . Considering the way employment is going, if they can communicate across an email and be able to use technology, that is where it’s going.”
- “During online review sessions, students joke in the text boxes. They are so enthusiastic. If this was in a real classroom you wouldn’t be able to hear because there is so much texting going on. They’re still with it, they’re still getting it. And it’s being recorded so if they miss something, they can play it back later. More responsibility on the students. It [the material] is there; you just have to go get it.”

Technology use. Two specific technology use tasks received a total rating of importance at less than 4: #46 provide student with basic hardware support (3.59) and

#47 refer student to technology experts (3.95); all other total ratings for the importance of specific tasks were 4 or better. (See Figure 4.8.)

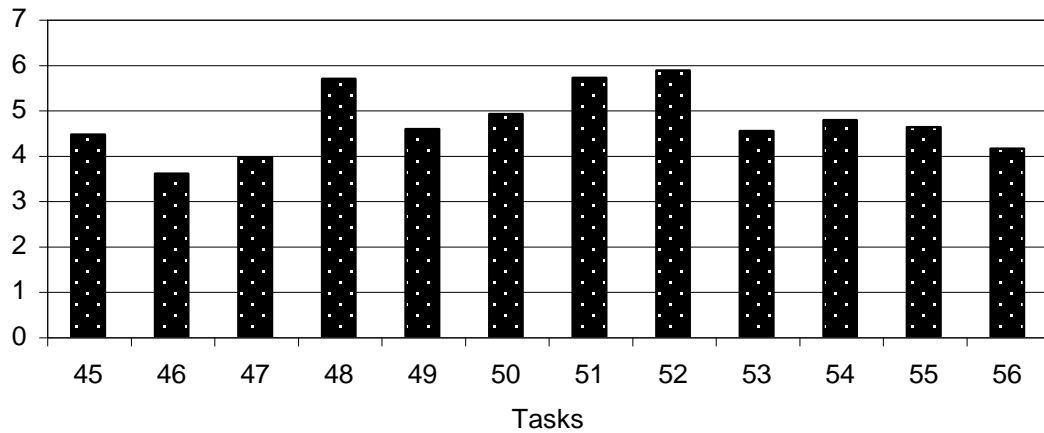


Figure 4.8. Importance of Technology Use Tasks. Scale 1-6

Three specific tasks received total ratings of higher than 5: #48 use word processing software (5.68), #51 use Internet browser (5.70), and #52 use email (5.86). Ratings for individual tasks by specific schools were less than 4 for these specific tasks: #46 provide student with basic software support by School 2 (3.60); #45 provide student with basic hardware support by School 2 (3.40) and School 3 (3.21); #50 use presentation software by School 1 (3.86); and #53 use hypermedia resources by School 1 (3.86). (See Table 4.19; see Appendix 12 for complete results.)

Table 4.19

<i>Importance of Selected Technology Use Tasks</i>					
Item	School 1 <i>n</i> = 7	School 2 <i>n</i> = 10	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7	Total <i>n</i> = 44
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
45 Give software support	5.43	3.60	4.30	5.14	4.45
46 Give hardware support	4.00	3.40	3.21	4.43	3.59
47 Refer to tech experts	4.57	3.00	3.70	5.43	3.95
48 Use word processing	6.00	5.30	5.65	6.00	5.68
50 Use presentations	3.86	5.30	4.84	5.67	4.90
51 Use Internet browser	5.57	5.70	5.70	5.86	5.70
52 Use email	6.00	5.80	5.90	5.71	5.86
53 Use hypermedia resources	3.86	4.50	4.60	5.17	4.53
Total	4.87	4.54	4.55	5.38	4.73

Qualitative data relating to technology use include these threads: comfort with technology, informing students of acceptable use policies and safety issues, and students with special needs. Six survey participants (14%) listed technology skills as being important; two of the six specifically stated that “being comfortable” with or having “confidence” in their technology skills was important; another of the six stated that “flexibility with technology” was important. In response to the open-ended question about the knowledge, skills, and dispositions important to online teaching, one teacher pasted in one of the standards: “model, guide, and encourage legal, ethical, safe, and

healthy behavior related to technology use.” Only two interview participants mentioned technology skills as being important.

- “Sometimes technology can be one of the toughest things. Technology kinds of snafus, that’s not my background. There is a technology department, but those folks are helping people in the school building as well—and I work from home. A family calls me that they’re having this issue or they can’t get this to open or that to open. Not being there with them and not knowing what type of computer they have—and that’s not my background, I find that really difficult.”
- “I think the technological piece is becoming more and more of an issue. A lot of kids have updated computers and may be working with Vista and the latest and greatest of everything while the latest thing we have on our school laptops is Windows 2003. No one in technology has Vista at work. Sometimes I can’t open their documents, and that is a problem. . . . Apparently we are switching to a higher version of Blackboard the end of January or February, and they claim it’s going to eliminate the problems we have with Vista. I’ll believe it when I see it.”

Course design. All course design tasks received a 4 (above midpoint) or better overall rating except for #63 upload new courses to the Internet (3.45), which received the lowest overall total rating and received the lowest rating from each school. The specific task rated highest overall was #57 review documents for accuracy and currency (5.43). (See Figure 4.9.)

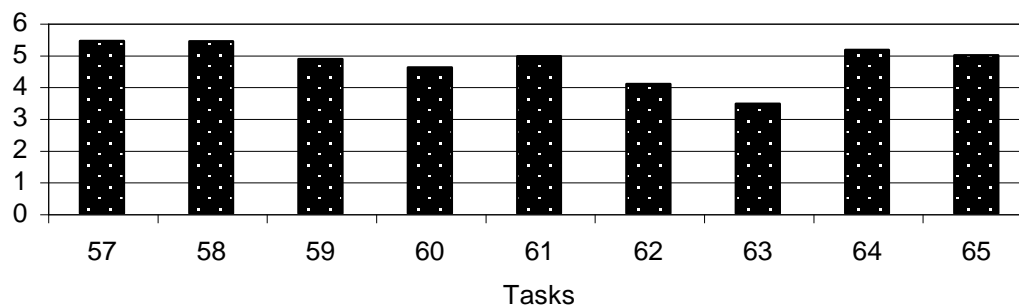


Figure 4.9. Importance of Course Design Tasks. Scale 1-6

Participants from School 1 and School 3 rated importance of course design tasks at 4.72 and 4.38 respectively—both above the midpoint of 4; however, their ratings were lower than that of participants from Schools 2 and 4, who rated importance of course design tasks at 5.08 and 5.48 respectively. (See Table 4.20.) Participants from Schools 1 and 2 rated #62 create content for new courses and #63 upload new courses below 4. School 1 also rated #60 incorporate multimedia and visual resources into an online module below 4.

The highest rating by Schools 1, 2, and 3 was #57 review course documents for accuracy and currency. School 2 had a tie for its highest score: #57 review documents for accuracy and currency and #64 review for alignment with course objectives and standards (both 5.50). School 3 had a tie also, #57 review documents for accuracy and currency and #58 revise documents for accuracy and currency (both 5.25). School 4 gave ratings above 5.43 to all tasks relevant to reviewing and revising course content and gave its highest rating to two tasks: #60 incorporate multimedia and visual resources into an online

module and #61 modify or design assessment (both 5.86). School 1 rated three design tasks below 4; School 2 rated none at less than 4; School 3 rated two less than 4; and School 4 rated only one less than 4. (See Table 4.20; see Appendix 12 for complete results.)

Table 4.20

<i>Importance of Selected Course Design Tasks</i>					
Item	School 1 <i>n</i> = 7	School 2 <i>n</i> = 10	School 3 <i>n</i> = 20	School 4 <i>n</i> = 7	Total <i>n</i> = 44
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
57 Review for accuracy & currency	5.86	5.50	5.25	5.43	5.43
60 Incorporate multimedia into module	3.83	5.00	4.20	5.86	4.60
63 Upload new courses	2.20	4.11	3.11	4.43	3.45
Total	4.72	5.08	4.38	5.48	4.77

Two survey responses related to course design concerned the different roles online teachers may have in different course models. A participant from School 1 commented, “It is also important to distinguish between what I consider a true online teacher - such as one who has developed a course - versus one teaching a ‘canned course.’” According to the participant, for those teaching ‘canned courses,’ “the keys to being successful are just a willingness to continually communicate and motivate students via email and or phone calls.” A participant from School 4 noted that “having created online courses” was important. Teachers who use courses that are “already created for

them usually do not know what material is being presented to the students.” Interview responses related to course design are discussed as part of the importance of national standards.

Course management. Overall totals for specific course management tasks were all rated at 4 or above. The highest specific task was #71 maintain records of communication with students (5.84); the lowest was #66 track registration (4.00). (See Figure 4.10.)

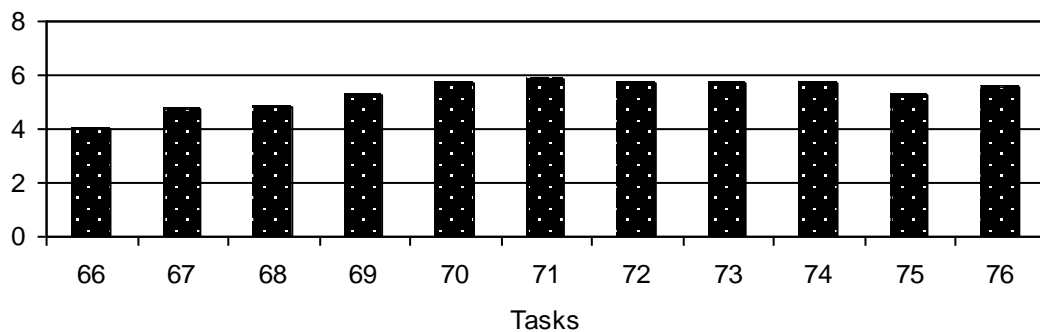


Figure 4.10. Importance of Course Management Tasks. Scale 1-6

School 1 rated all management tasks at 5 or 6; three tasks were rated at 5, and three were rated at 6. School 2 gave ratings of less than 4 to three tasks: #66 track registration, #67 assess student for readiness for content (3.70), and #68 assess student readiness for delivery model (3.90); the rest were rated at 5 or higher. With the exception of the same three tasks, School 3 rated all at 5 or higher. School 4 rated all management tasks at 5.43 or higher except for #66 track registration, which received a rating of 4.14. (See Table 4.21; see Appendix 12 for complete results.)

Table 4.21

<i>Importance of Selected Course Management Tasks</i>					
Item	School 1 <i>n</i> = 7	School 2 <i>n</i> = 10	School 3 <i>n</i> = 19	School 4 <i>n</i> = 7	Total <i>n</i> = 43
	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
66 Track registration	5.00	3.70	3.78	4.14	4.00
67 Assess readiness for course content	5.00	3.70	4.94	5.43	4.73
68 Assess readiness for delivery method	5.00	3.90	4.94	5.43	4.78
71 Maintain records of communication	6.00	5.80	5.84	5.71	5.84
Total	5.60	5.01	5.28	5.48	5.29

Participants made only two comments related to course management; both were from interview participants and had to do with making contact with parents. One teacher from School 1 noted, “With this being the first time a student has done this [taken an online class] as a 9th or 10th grader, Mama—they’re pretty involved, you know, needing to know how things work. Understandably.” A teacher from School 4 commented on their new system for assuring that all students are on target:

Our early warning system forced me to look at all grades. It’s a good system to keep track of students. We talk to parents. Some didn’t even know their kids were taking online classes! We’re working with kids to secure success. Parents love it; they are in their children’s world again. It [the work] is so much harder, but parents can check on kids. It eliminates the chance to lie. Kids can’t intercept mail

or phone calls any more. We can see if parents have been checking by looking at IP addresses.

In responses to the open-ended survey question of the experiences, qualities, or knowledge that were most important to being successful as an online teacher, these themes emerged that do not relate to specific task categories: dispositions, preparation for classroom teaching, and preparation for online teaching. Comments related to dispositions will be reported here. Comments related to preparation for classroom and online teaching will be discussed under research question 4.

Dispositions were specifically listed by survey participants as being important to success in online teaching. Eight participants representing each online school listed flexibility as an important disposition for online teachers. Seven teachers listed qualities such as empathy, interpersonal connection, being approachable and welcoming, and encouraging students to be motivated and “take ownership of their learning.” These qualities were perceived as important to assure “that the students and parents involved will be comfortable seeking individual assistance when needed” and to “connect with students and develop a positive working relationship.” One participant expressed concern that online teachers be “willing to reach out to students who do not seem to be actively participating. The online classroom's doors are always open, so online teachers must be willing to field questions and work to solve problems that arise around the clock.”

Three participants also mentioned that “a willingness to learn and grow as teachers in a relatively new area. . . so that their courses can be delivered in the most rich and meaningful way possible. . . is the hallmark of good online teachers.” Three

participants listed commitment; two listed patience, humor, enthusiasm, motivation, and self-discipline; one listed organizational skills. Nine participants said that online “teachers should possess a high level of content knowledge” and the ability to deliver it online.

Seven of eight interview participants also specifically mentioned being flexible as an important disposition for online teachers. Four stated that having an upbeat, positive personality is important; one also noted that she had been forced to change her online persona: “I’ve had to sort of change my whole style to ‘come on and do this for me, honey.’ Now I’m the cheerleader and cajoler instead of the enforcer.” Another said that “doing well with relating to the kids and being personable and having that translate across the computer screen” are crucial. Five mentioned words like *self-disciplined*, *diligent*, and *organized*. As one explained, “I have to think ahead. Once an assignment is posted in BlackBoard and students start working on it, I can’t change it in mid stream if I have made a mistake.” One listed patience. One participant said that handling public relations “is very important: parents, students, guidance, case manager, whoever it is. Getting along with all of them is very important to this being successful.”

Two online teachers mentioned that the main disposition necessary for successful online teaching is “being about the kids—especially the ones who have failed before, unless they are purposely trying to,” and “being about ‘I want you to pass this class’ and not concerned with the other rigmarole.” One participant noted that she is “a visual learner so I make my course more visual.”

Research Question 4

According to online teachers, what are the most effective ways to prepare and support online teachers? Other than responses to questions about the national standards, which have already been discussed, there are no quantitative data specifically relevant to the fourth research question. In the open-ended questions about the experiences, qualities, or knowledge that were most important to being successful as an online teacher, however, survey respondents mentioned themes that relate to research question 4. One stated that the “standards employed by the state/district” are very important. Two mentioned that classroom experience is helpful. Twenty participants, teachers from each school, stated that online teachers need to have been online students. This experience “allows you to be a more effective online teacher.” As one teacher put it, “Taking an online course gives you a student perspective as far as time allocated for certain tasks and requirements such as minimum postings in discussion areas, etc. I think every online teacher should have such an experience.”

Responses to another open-ended question in the survey and to interviews also related to this research question. Survey responses will be discussed first. The final open-ended question on the survey was this: What else do I need to know to understand what you feel is important to preparing and supporting online teachers? Three teachers from School 1 responded to this question (60%), four from School 2 (44%), fifteen from School 3 (68%), and seven from School 4 (100%).

A number of threads evolved after coding participants’ responses: online teachers’ expressed need for mentors to help them with their own self-regulation and isolation; the sources of courses, various models for courses and their inadequacies; the need for

professional development; the need for support in dealing with at risk students; the need for public relations and other communication to combat misconceptions about online learning; the need for equitable salaries and working conditions; and involving all online teachers in course evaluation. These threads were regrouped into these themes: courses, teacher roles, employment conditions, professional development and mentoring, and public relations and communication.

Courses. One support that online teachers want is appropriate courses. Survey participants preferred to teach courses that they had developed themselves. Not only did teachers “have a better understanding of how to teach an online course” that they “have helped to create,” they also felt that courses developed by instructors better met students’ needs. A teacher from School 1 noted, “I think it is important that counties develop their own courses even though the cost is much greater than going with a ‘canned’ program. . . . Although training cost and development costs would be greater, the quality of the course for the students would be superior.”

Interview participants said that their experiences as online teachers varied, depending on the input they had into courses and the relationship with students’ local schools. One concern was teaching courses not created by content experts: “I was probably about 10 minutes ahead of my students that semester. The course was written, but what had been done before was clearly not done by an earth science teacher. I’ve seen this all over the state. You know something about something that might overlap, and suddenly you’re designing an online course!”

Some teachers did not approve of existing course materials: “The materials I used were strangely organized, the assignments and more formal assessments were almost impossible to grade with the materials available, and some of them did not address or assess what they needed to. And some were just incorrect. Any support to make the assessment process easier would be a major way to support online teachers.”

Participants prefer being able to adapt courses if they are working with existing material: “I was given a ready-made course. Do I add to it? Yes. Do I fix things that I don’t like? Yes. Do I alter the assignments? Yes. Do I proofread and correct things that are wrong? Yes.” Adapting is less time-consuming than creating a course from scratch, especially if the course is well-designed. “When I moved into [School 4], the course was already written. That became the easiest job I had ever done. All I had to do was teach where with my other ones I have written them.”

All teachers from School 4 are expected to personalize their courses—“add to content, change it to fit you and your students. Even though I designed it, I have made changes.” There are limits to the changes that teachers are allowed to make, however. A teacher from School 4 said, “If you make major changes or delete assignments, you must fill out forms, but we do have that flexibility.” Typically, teachers who are revising courses add “more open response questions and tests.” A teacher from School 2 said she works “with instructional designers, content experts, SOL experts, and other specialists to align courses.” A participant from School 4 said, “A lot of those hours I am putting in are spent developing things for my students.”

Teachers found themselves spending hours—unpaid hours—developing supplemental materials for students. This was frustrating for students and instructors. One teacher from School 3 commented, “[I found] myself filling in content and sometimes spending hours online in a chat room and on the phone trying to establish a foundation from which the student could work. I would create my own materials to try to fill in the gaps. It is a tremendous burden to the online teacher and frustrating for the student, especially if there is any delay in communication and the student is ‘stuck’ until he/she can connect with the teacher.”

The time frame for developing courses can be hectic. Several teachers have developed an online course as their students were taking it. In a face-to-face class, teachers rarely have an entire course mapped out ahead of time, but expectations are different for online classes. Several participants had created courses during their first semester as online teachers, despite having no prior online teaching or design experience. Some were also teaching face-to-face classes and stayed just a day ahead of their online students! Most participants enjoy doing course design: “I love it! It’s so cool. A textbook is a nice thing, but making it interactive and putting all resources in one place for kids is great.”

It can take hours or days to learn new software also. “You put in a lot of hours—especially when you’re learning new software. I spent so many countless hours last summer getting ready to switch to D2L. I was never compensated for hours and hours and hours of work.”

One participant from School 3 stated that she liked the authentic assessments that the school's course model used and appreciated that some students need to be able to take a class on their own schedule, but she felt like students in a "classroom of one" missed out by not having interaction online with other students: "Since there is no 'class,' the student is facing the material with no perspective other than his/her own and that of the mentor. While this is not insufficient for learning, I think group interaction within a classroom—especially online—is valuable." Students need "to discuss content and practice skills" because an "interactive component allows student interaction, which sometimes is more powerful than that of a teacher."

Teacher roles. The central issue related to online teacher roles raised by participants in the open-ended question section of the survey concerned the difficult, time-consuming nature of online teaching relative to classroom teaching. "Teaching online is very time-consuming; administrators need to know that." Anyone planning on teaching online needs to "understand that the classroom is not open from 8:00-4:00 but much longer than the bricks and mortar schools. Online teachers need to 'be in class' when students are working on assignments to give assistance as needed. It is a much longer than a 40 hour work week." Any teachers "looking for an easy classroom, stay in the bricks and mortar school." Four teachers specifically noted that they are "barely making minimum wage." One stated, "Online teachers are real! We spend hours at the computer perfecting our courses—hours that go far beyond the contract time." Despite the difficulty of teaching online, teachers enjoyed it: "Teaching online is very difficult

but much more rewarding. Online teachers have a better relationship with students and parents due to the constant interaction between all participants.”

Interview participants reported that they depend on staff at students’ home school. Just as course design responsibilities may be spread between two or more people, responsibility for monitoring students and completing tasks like reporting grades may be spread among various staff members in various locations. In Schools 1 and 4, students may take online classes during the regular school day in a computer lab that is monitored. Monitors may be teachers, but they oversee students in many different disciplines in one period, so they cannot be content experts for all or even many of the students. Online teachers said, “When a student is sitting alone at a computer, I don’t know when they drift off.” Below is a sampling of responses related to working with other staff:

- “Ideally, there is a monitor in the room, but the monitors take attendance and make sure kids don’t leave the room, and that is about it.”
- “One school mentor changed grades if she didn’t like them. I am talking to the mother, and the grades are different on the report card than what I sent to the school. It’s frustrating when different schools handle things differently.”
- “Some monitors are really very hands on and making sure that kids are on the right page and are doing work. Some are just attendance takers. It makes a huge difference for the less mature children. In one school, I can’t contact the monitor. I call the guidance counselor, who gets the kid out of class so she misses almost entire period just to be told to do lesson 7. Students at some schools don’t get the passwords they need for tests, so each emails me for the

info. [If there is] one thing I could fix and change, it would be to standardize the mentors and how that works from school to school.”

Employment conditions. Survey participants touched on specific problems associated with conditions peculiar to online teaching, but interview participants reported on this topic in more depth. Teachers became involved in online teaching in various ways. Four of the eight participants interviewed became online teachers in order to stay at home with their young children. As one put it, “I wanted to be home with them, and day care ate up my entire salary.” Three were approached by an administrator or co-worker about teaching online, one of them as she was preparing to retire from classroom teaching. Two became online teachers as a course requirement of a graduate program in which they learned to design and teach online courses. Two actively sought positions because they had heard about the online programs. One responded to a notice about learning to teach online just because she was curious about how it could be done and was looking for information to help her students who were having trouble scheduling her elective class during the regular school day; she actually got hired even though she had not applied for a job! As another participant put it, she had not planned on becoming an online teacher; the job “sort of fell in my lap.”

All eight interview participants stated that their pay was inadequate for the hours they put in. Since many of them are hourly employees with no benefits, they are aware of their pay and of the fact that they cannot stop working when the hours are up:

- “You can’t just say, ‘I’ve worked my 8 hours’ when they send you emails in a panic.”

- “I’ve got to stop checking email so often, but if they are working on something, and I can give them some quick feedback. . .it helps.”

Interaction with students is time-consuming. Only two interview participants were full-time online teachers. Being part time, some keep track of hours even though they may be paid for a set number of hours or by the student.

- “I was just blown away by how much more time it took than I ever realized. Administrators think you should be able to teach 300 kids. They don’t have the picture of how much individual attention—you have 10 kids who are emailing you daily with ‘I don’t get this’ or ‘I forgot how to do this.’ One-on-one takes a lot more time.”
- “I am scheduled [to work] for two hours a day, but I am online from four to six hours a day doing all the tasks, grading, interacting with students, answering emails, answering pages, talking to students on the cell phone, contacting mentors and parents on a kid who might be falling behind—all those things that a teacher does.”
- “Administrators need to see it as real teaching. No benefits. Not even part time. I’m like a sub. I just come in and do my job. That’s frustrating.”
- “Administrators need to understand how the program works and the time that it takes. It might sound easy to say you have 30 students, but it takes a lot of time because you are dealing with them individually.”

- “Administrators think they know, but they don’t. You can’t even have a discussion. . . . There is no common ground. Administrators don’t have a good idea of what we’re doing, but they make decisions.”

A participant from School 3 stated that it is hard to predict how much time a course will take since “some students will be very needy and demanding.” One participant said that there needs to be reform in the way that the load is assigned.

- “With my five students last year, I was working way more than I ever did face-to-face. It never stopped. I think a study needs to be done to see what tasks online teachers do and how long the tasks take. Leaving feedback on assignments is much more time-consuming online. I have to snag it, paste it into editor, open equation editor, snag that, save it; there is much to just getting the document going—more than just writing out the comment. Administrators need to look at that. I don’t think the pay is equitable when you look at that. It’s perceived that you’re working from home, in your pajamas. . . but it’s just as much work if not more.”
- “I only have 70 online students, but there are two here and three here, all of these different schools and schedules. This one had a snow day; they have different holidays, exams.” She has to create and stick to a pacing guide. If a student does not complete the assignments on the pacing guide for week 6 by the stipulated date, “I have to give him 0 and call parents and contact mentors. Maybe that kid didn’t get them in because he was absent. I know he will do it next week. They don’t realize it is more individual than they think it is.”

While Schools 1, 2, and 3 had no specific rules regarding response time, it is understood that responses should be quick. Teachers at School 4 “must respond within 24 hours and grade work within 72 hours. It’s important to get back to them quickly. Administrators can check up on teachers just like we check up on students. They can look at the progress reports.” Drop boxes are dated and time-stamped as is feedback. Teachers are observed three times a year. Administrators look at the ways teachers have personalized the ready-made courses as well as interaction with students:

As far as observations, you’re more behind glass than you are in a face-to-face class because everything is recorded, every email, every page. It’s like you’re in a fish bowl. . . . When I’ve put in 6 hours a day [She was getting paid for two hours a day.] and it’s been 72 hours, and I still can’t get it all done, I decide that I just have to turn this off now. You do what you can, but it really is a 24/7 job.

Participants were concerned about what their students post on their courses. One told about having 10 students from Guatemala who had actually been in an earthquake. The class was having a really intense discussion board about their experiences in earth science. “It got sort of freaky, so a kid brought up senior pranks as a way to tone down the scary topic. I told them to not talk about the pranks online because they were leaving proof, but it was too late.” One student wrote about painting three rabbits with the numbers with 1, 2, and 4 and setting them loose in the school. The entire school spent hours looking for the (nonexistent) rabbit number 3. The participant said that one advantage was that the students could not hear her laughing out loud like they would

have in a face-to-face classroom, but she had to be sure to add comments making her official disapproval clear because her administrator might eventually read it.

Two of the participants who are stay-at-home parents said that the private tutoring they did their first year off from face-to-face teaching had helped them adjust to the differences in online teaching, but there are other challenges to working at home. “After finally getting a call through to a Guatemalan student, one of my kids fell, and I had to stop the conversation in the middle,” one teacher said, laughing. Another said, “I have a five year old, so we go to bed early. Phone calls from students doing their homework at 10 at night were a problem.” As one put it, “Last year with AB calculus, I just had to turn off the ringer. It rang all day. My BC calculus students this year are much more independent. They like the challenge of thinking it through themselves.”

Another said that it is hard to keep the boundaries between work and home separate: “One student complained in his evaluation about hearing a baby crying in the background when he called me. Maybe I should show more of myself to help build a sense of community but. . . I’m gun shy. I don’t want it to be perceived that I am not with you 100 percent when I am teaching you.”

Participants report a pioneering spirit to online teaching that makes them overlook inadequate preparation, time, and pay. They enjoyed “paving a new path. Being the first person, I learned as I went.” One part-time online teacher, who considers herself seriously underpaid, said, “I am so glad that the art teacher asked me [to become involved in the online courses]. She was friends with the guy that ran it. Everything is word of mouth at this point.”

One participant saw it as an advantage that online school administrators “do get rid of people who aren’t teaching well. We need to do that to keep it an awesome experience.”

Professional development and mentoring. At least one teacher from each online school mentioned needing more emotional support and connection. “Isolation is a problem. It is helpful to have a connection to other online teachers. This support network is important.” One teacher suggested that “online teachers need to be able to communicate with each other face-to-face more. I think that a short—maybe two or three hours—meeting each spring to share techniques, problems, and solutions that arise in online teaching” would be helpful or having “a ‘mentor’ or colleague to network with and talk about problems or issues that they encounter.” Online teachers felt like they got little recognition from peers or administrators for their work: “I think teachers—like students—need to feel 'successful' at what they do. Administrators and policymakers should keep this in mind.”

Interview participants who were no longer teaching any face-to-face classes reported needing more personal contact. One from School 1 said, “You feel disconnected from the rest of the county. I go to the county-wide English meetings, but I sort of feel like a stepchild because I’m not really doing everything that the classroom teachers are doing. It’s a feeling of you’re out there by yourself.” One from School 4 said, “This year we all met face-to-face. It was our week, and we were all together. It was great. We got training in changes, software, which was good for new people and good for old ones to know this is our group.” Another from School 4 said, we have “weekly meetings and

goof off. It's nice. You're a real faculty." A participant from School 2 was glad that the director "sets us up with mentors informally. There are some online teachers who won't teach other teachers. It's important to have that connection."

At least one survey participant from each school wanted more training and staff development. They did not want the "train the trainer" model, and they wanted training *before* they began online teaching as well as ongoing professional development. They were interested in training in the course platform, but two specifically mentioned a need to provide "mentors with the tools, skills, and knowledge base that allows for them to be aware, responsive, and on target to meet the individual needs of the learners they will encounter." A teacher in School 1 noted, "There is more flexibility in classroom teaching rather than using a program adopted by the county or online group. Teachers are more able to access ability level and motivational level in the classroom." By contrast, "in online teaching, the teacher has a student name, but little or no knowledge of capability. In our online situation, we have students all over the county with all ability levels." Online teachers need to know how to cope with these differences.

According to interview participants, the most useful professional development would begin before online teaching, would be ongoing, and would be on a continuum of increasing depth and expertise. Teachers in School 3 had preparation in online teaching and online course design as part of a graduate program before they began teaching. Teachers from School 3 reported that both experiences helped. "I know the course curriculum better than most online teachers. I also feel like being a classroom teacher helps because I am familiar with the study and work habits of most freshman students

and can use my experience to help motivate and encourage them.” The other School 3 interview participant said, “Online courses in online teaching like the ones I took are a good example of good prep for teachers. Teachers need to know the curriculum, the technology, and the philosophy.” One School 3 participant said that ongoing meetings of online teachers would be helpful, “just to explain changes if nothing else.”

At least one interview participant from every school except School 3 had begun online teaching with little preparation in course design or online teaching. A participant from School 1 said, “It’s definitely been on-the-job-training.” She laughed and continued, “I wish I had known something about how to write a course.” A School 2 participant said, “We’ve been learning as we were teaching, and it’s difficult. How to use video streaming, how to use html, a course that would help you to write your course and know how to use those things before you start that would be helpful.” Those who said they had little preparation for online teaching initially agreed that their programs had “turned around and done so much more” [with preparation]. They felt that the lack of preparation “wasn’t the fault of the administrators. Things just moved so quickly then.” Schools 1, 2, and 4 are now preparing teachers before they actually begin teaching. Several participants noted that they “have never seen so much support from an admin team” before they began teaching online.

Participants described the preparation they have had and the preparation they would like to receive:

- Before the fall 2007 semester, School 4 teachers were required to have “taken or taught online courses before—they wanted people who had done both, wanted someone who had been on the other side.”
- In the summer of 2007, “they put us [School 4 teachers] all through a course through ETLO [EdTech Leaders Online] on teaching online. ETLO training was sort of global; the other has been more specific: how to use Elluminate [the course platform], how to use other software, the lesson builder, etc.”
- “ETLO is sort of a basic methods course that you would take as an undergrad. Very basic. People in there had never taught online and people had taught for years. But it was useful, and part of what was useful was that I had never even taken an online class. The teacher was modeling the things that should be done in a good online course. There should be more training available, and teachers who will teach online should have some sort of preparation besides how to use the computer. The ETLO was OT 101, and I wish there were level 201 and 301, something ongoing.”
- A participant from School 2 said she wanted something to challenge her, “not the same standards over and over. I am teaching and keeping up to date. In the classroom, I was a teacher who would copy class sets and be proud! I would get into repetition. I don’t do that any more.”
- “The other challenge I would say is trying to stay current and stay fresh.”

- A participant from School 1 said, “I would like to take more courses. . . . Online teachers should have to take an online course every so often, to keep up to date, just to see it from that angle, the angle of the student.”
- “As fast as we are making our students move, we have to keep up. Things change constantly.”

Most agreed that being an online student was important. As one interview participant put it, “Taking online graduate classes myself was a great learning experience for an online teacher.” She had taken courses in weight training and jogging. “I really liked the weight training course, but jogging left much to be desired. . . . It was almost like they were trying to make it hard. . . . So much reading and just regurgitating these facts. The exam had a question about how a shoe factory puts together running shoes!” Other participants noted that taking a bad online class can teach online teachers what to avoid.

Public relations and communication. Comments on public relations and communication centered on the need to work with other school personnel to make sure that students taking online courses have the necessary skills to be successful and making school personnel, students, and the community aware of the rigor of online courses. Two teachers noted that “students should be very carefully selected for online learning environments. Students who struggle in reading comprehension will have a difficult time understanding the course material and directions.” Another commented that preparing for unmotivated students is especially time-consuming in a virtual environment. “Online students and teachers need. . .strong. . .self-regulation skills.”

According to another teacher, “Students, parents, and guidance counselors need to know that an online course is not easier than its in-school counterpart; it is more difficult because the student has to take a more active role in his or her own learning.” While online courses are flexible, parents and “students need to understand the online course will take as much as if not more time than a regular class.” Two teachers from different schools expressed this sentiment: having a good support network to communicate with parents and schools and answer technology questions is “a key to a positive online experience” that will “hook a student into online learning.”

Interview participants see themselves sometimes in conflict—at least philosophically—with classroom teachers.

- “I wish people in high schools would understand this [online learning] is here whether we like it or not. . . . When we are sending kids off to college now, they are going to be taking online courses whether they want to or not. They need these skills. . . . Who has taught them?”
- “Classroom teachers think it’s easy. You just sit at home by the computer. I love it, but it’s more work and certainly more time than in a classroom. The number of hours—you never end.” She noted that the computer—and, therefore, the class—is always “right there in the house. I walk downstairs on Saturday morning and will just take a minute to check email, and hours later I haven’t been to the grocery store and am still stuck at the computer.”
- “Some people have misconceptions about how you can actually do work online. We really try to hit all of the standards. It’s not like give a kid this

worksheet and have free time for the rest of the period. It's stuff that we feel is really important."

- "The courses are challenging academically and should be viewed as regular classes and be given the same amount of credit and support that face-to-face classes receive."
- As one interview participant put it, online teachers "have to play to the customer. If I do a bad job, I might have less money." In School 4, part-time teachers are paid \$300 per student with a \$150 bonus for students who successfully complete the course; full time teachers get a contract just like full time classroom teachers. Every 25 students is considered a section, and teachers are scheduled to work two hours daily for every section.
- One School 4 participant said that in face-to-face classes, teachers will try to scare off bad students. "One classroom teacher was really tough, so she had empty seats, but those kids went into my class. That doesn't happen in online classes. You have to be a real teacher and teach students—and teach parents."

Summary

Quantitative and qualitative findings were presented in this chapter. Demographic findings were discussed in Chapter 3 as part of an assessment of how representative the survey and interview participants are of the general K-12 online teaching population.

Descriptive statistics related to research question 1 revealed that participants endorsed both national standards but preferred national online teaching Standards 1 (NEA) to national online teaching Standards 2 (SREB) by a small margin. Major

concerns were the language of the standards and the applicability of standards to online teachers who work in various models and perform varying teaching tasks. Responses to open-ended survey and interview questions revealed similar findings.

Descriptive statistics related to research question 2 revealed that, overall, categories of teaching tasks were perceived to be frequently employed in this order: the highest frequency was course management, then pedagogy, written communication, technology use, and course design was the lowest frequency. The frequency with which teachers performed these tasks in their online teaching practice varied, depending on the course model. No qualitative data related specifically to this question.

Descriptive statistics related to research question 3 revealed that, overall, categories of teaching tasks were perceived to be important in this order: the highest was course management, followed by pedagogy, course design, technology use, and written communication. The importance that teachers attributed to these tasks in their online teaching practice varied, depending on the course model. Qualitative data indicated that written communication and pedagogy were of primary importance.

Qualitative data collected in reference to research question 4 indicate that online teachers report a need for specific preparation for online teaching before they teach online as well as ongoing professional development that will help them to increase their expertise and keep their skills up to date. Participants expressed the belief that online teachers benefit from experience as online students. They also reported that employment conditions for online teachers do not reflect the time commitment required to perform the job well. They reported feeling some disconnect from the regular secondary community.

5. Discussion

This chapter will present a brief summary of the study and findings as they relate to each research question. Then conclusions will be presented, grouped around common topics. Recommendations include suggestions for online teachers, teacher educators, and policymakers as well as for future research.

Summary

The Study

The purpose of this mixed methods study was to determine online teachers' perceptions of national standards for online teaching and the knowledge, skills, and dispositions they perceive to be important to their online teaching practice. The study used a survey questionnaire, open-ended responses, and interviews.

Quantitative data were collected in three parts of an online survey instrument developed by the researcher. The first section included demographics as a way of describing the teachers in this sample and of determining how representative they are of the general population of K-12 online teachers in the U. S. Demographic questions could not be connected to participants' responses on other parts of the survey. The only identifying information on other survey sections was online school affiliation.

The second section listed 76 online teaching tasks that teachers rated by the frequency with which they perform the task as well as by the importance of the task to

their online teaching practice. These tasks were divided into five categories: written communication, pedagogy, technology use, course design, and course management. The frequency rating used a 4-point verbal frequency scale (1 = never, 2 = rarely, 3 = often, 4 = constantly) while the importance rating used a 6-point semantic differential scale (Extremely Unimportant – Extremely Important).

The final section asked teachers to rate the importance of two sets of unidentified online teaching standards published by NEA (2006) and SREB (2006b). Additionally, participants were asked this closed question: Which of the two sets of standards you just evaluated *better* summarizes what online teachers should know and do?

Qualitative data were collected through interviews with eight participants and through three open-ended questions on the survey:

- What strengths or weaknesses do you see in these two sets of online teaching standards?
- What specific experiences, qualities, or knowledge do you consider to be most important to success as an online teacher?
- What else do I need to know to understand what you feel is important to preparing and supporting online teachers?

The Participants

Administrators from four online high schools identified a total of 92 experienced online teachers from their schools who were invited to participate in the online survey questionnaire. Of those sent email invitations, 49 responded. The final question on the demographic section of the survey questionnaire asked that teachers willing to be

interviewed key their preferred email address into the appropriate blank. From those who volunteered, two participants from each school were selected to be interviewed. Based on average experience, one humanities participant and one math/science participant were selected from each of the four schools. Interviews were conducted in person, by telephone, by email, and with Skype online audio/video software.

Data Analysis

Using *SPSS 14.0 for Windows*, the researcher ran descriptive statistics to compute means, standard deviations, and frequency for survey responses related to demographics, frequency and importance ratings, and the teaching standards. After analysis of the surveys, responses to open-ended questions were analyzed. Analysis of the surveys helped to focus the interview questions as topics emerged. Interview transcripts were also analyzed. For the qualitative data, memos, coding, data display, and connecting strategies were employed to identify threads and themes.

Research Question 1: Standards

How do online teachers rate the importance of specific existing online teaching standards to their online teaching practice? Overall, survey participants reported both sets of standards as being important, well above the midpoint of 3, but perceived the NEA standards to be of slightly more importance than the SREB standards. The only specific standards rated at lower than 3 by an individual school were the NEA and SREB standards related to having completed professional development specifically geared to online teaching; however, over 80% of the participants from that school rated both

standards at 5 or 6, clearly above midpoint, and overall, those standards received a rating of nearly 5.

The two NEA standards with the lowest overall ratings were “Foster community-building virtually and facilitate collaborative learning” and “Use adaptive technologies to meet individual student needs.” The NEA standards with highest overall ratings were “Are student-centered and flexible, while maintaining high standards” and “Are motivated self-starters who work well without constant supervision.”

The two SREB standards with the lowest overall ratings were “Demonstrate competencies in using data and findings from assessment and other data sources to modify instructional methods and content and to guide student learning” and “Have completed professional development specifically geared to teaching online.” The two highest overall were “Provide online leadership in a manner that promotes student success through regular feedback, prompt response, and clear expectations” and “Are effective in written communications.”

The qualitative data revealed these themes related to the national standards: teachers’ lack of awareness of the standards; problems with the language of the standards; the standards’ failure to acknowledge how much the responsibilities of individual online teachers vary, depending on the school and course model; dispositions; aspects of the standards participants endorsed; and omissions participants perceived in the standards.

Research Question 2: Frequency

How do online teachers rate the frequency of use of specific knowledge and skills to their online teaching practice? Overall, the category of task with the highest score was course management. Because course management tasks are often done once per course as a matter of policy rather than as part of ongoing teaching practice, those tasks used a slightly different scale; for those tasks *always* replaced *constantly* at the high end of the frequency scale. Overall, the next highest total rating went to pedagogy. Course management and pedagogy were rated overall above 3, the midpoint defined by *often* on the scale.

Overall, written communication, technology use, and course design tasks were rated below 3. While Schools 2 and 4 reported performing all tasks often or constantly, Schools 1 and 3 rated written communication, technology use, and course design as being performed rarely or never. The written communication category included several items that relate to student collaboration, which is impossible in most courses for Schools 1 and 3. The biggest discrepancy was between course design scores; teachers in Schools 2 and 4 perform design tasks often or constantly while teachers in Schools 1 and 3 rarely or never complete course design tasks. Only two teachers in School 1 are responsible for course design; no teachers in School 3 are. All qualitative data related to teaching tasks are included under importance in research question 3 rather than under frequency.

Research Question 3: Importance

How do online teachers rate the importance of specific knowledge and skills to their online teaching practice? Overall, participants from all four schools rated the

importance of various categories of teaching tasks in this order: the highest was course management, followed by pedagogy, course design, technology use, and written communication. Results of the qualitative data themes are discussed by task in the order in which they appear in the survey: written communication, pedagogy, technology use, course design, and course management. In participants' responses to the open-ended survey question about the experiences, qualities, or knowledge that are most important to being successful as an online teacher, these themes emerged that do not relate to specific task categories: dispositions, preparation for classroom teaching, and preparation for online teaching. Each is discussed under relevant sections of research questions 1 and 4.

Written communication. The following written communication tasks received ratings of 5 or 6 on the 6-point semantic differential scale, well above the midpoint of 4: "Provide feedback, Answer questions, Foster student connection and motivation, Create a specific tone, Maintain 'teacher presence,' Demonstrate netiquette, and Model written communication skills." The following written communication tasks were rated below the midpoint by individual schools: "Deliver content (written 'lectures') by School 1; "Facilitate collaborative learning" by Schools 1, 2, and 3; "Facilitate virtual community building" by Schools 1, 2, and 3; "Facilitate synchronous chats" by School 1; and "Facilitate asynchronous chats" by Schools 1 and 3. Written communication qualitative data include three themes: importance of written communication skills, quick response time, and ability to project online presence.

Pedagogy. Totals for all pedagogical tasks were rated at 4 or higher on importance; 20 of the 29 tasks were rated at 5 or 6. The highest rating for a specific task

by all schools was “Evaluate student products,” followed by “Evaluate student progress, Guide understanding of concepts, and Develop intervention plans for unsuccessful students.” All scores for individual pedagogical tasks by individual schools were rated at 4 or higher except for “Use essays to assess student progress” by School 3, which had the lowest total rating by all schools. Survey and interview qualitative responses about pedagogy reveal these themes: importance of communication, assessing and addressing student abilities and concerns, variation in student roles, advantages of the pedagogical model presented by most online courses, classroom discussion, meeting students’ scheduling needs, and the importance of online learning to students’ futures.

Technology use. Two specific technology use tasks received an overall rating of importance at less than the midpoint of 4: “Provide student with basic hardware support” and “Refer student to technology experts”; all other total ratings for the importance of specific tasks were 4 or better. Ratings for individual tasks by specific schools were less than 4 for these specific tasks: “Provide student with basic software support” by School 2, “Provide student with basic hardware support” by Schools 2 and 3, “Use presentation software” by School 1, and “Use hypermedia resources” by School 1. Qualitative data relating to technology use include these themes: inconvenience, comfort with technology, and helping students with special needs.

Course design. All course design tasks received a 4 or better overall rating on importance except for “Upload new courses to the Internet,” which received the lowest overall rating and received the lowest rating from each school. “Create content for new courses” and “Incorporate multimedia and visual resources into an online module”

received ratings below 4 from some schools. The highest rating by Schools 1, 2, and 3 was for “Review course documents for accuracy and currency.” School 2 had a tie for its highest score: “Review documents for accuracy and currency” and “Review course for alignment with course objectives and standards.” School 4 gave ratings above 5.43 to all tasks relevant to reviewing and revising course content and gave its highest rating to two design tasks: “Incorporate multimedia and visual resources into an online module” and “Modify or design assessment.” School 1 individually rated three design tasks below 4; School 2 rated none at less than 4; School 3 rated two at less than 4; and School 4 rated only one at less than 4. Survey and interview responses related to course design concerned the different roles online teachers may have in different course models.

Course management. Overall totals for specific course management tasks were all rated at 4 or above. The highest specific task was “Maintain records of communication with students”; the lowest was “Track registration.” School 1 rated all management tasks at 5 or 6. School 2 gave ratings below 4 to three tasks: “Track registration, Assess readiness for course content, and Assess readiness for delivery method.” School 3 rated all management tasks at 4 or higher except “Track registration.” School 4 rated all management tasks at 5 or higher except for “Track registration.” The only theme that emerged from qualitative data about course management related to contacting parents.

Research Question 4: Preparation and Support

According to online teachers, what are the most effective ways to prepare and support online teachers? Responses to the open-ended survey questions and interviews revealed these themes related to preparing and supporting online teachers: caliber and

model of courses, teacher roles, employment conditions, preparation for classroom teaching, preparation for online teaching, professional development and mentoring, and public relations and communication.

Conclusions and Discussion

Based on the research questions of this study and analysis of the quantitative and qualitative data, the researcher has reached the following conclusions, which have been organized by topic. Discussion of these conclusions follows.

National Standards for Online Teachers

1. Generally, online teachers endorse the national standards for online teaching as set forth by NEA and SREB in 2006.
2. Generally, online teachers agree that the knowledge, skills, and dispositions set forth in the NEA and SREB standards include tasks that they perform frequently and that are important to their online teaching practice.
3. The NEA standards online teachers perceive to be the most important relate to these dispositions: being flexible and self-regulated, being student-centered, and maintaining high standards.
4. The SREB standards online teachers generally perceive to be the most important relate to being effective in written communication and providing regular feedback, prompt responses, and clear expectations.
5. The NEA standards online teachers generally perceive to be the least important relate to community building and collaboration as well as using adaptive technologies.

6. The SREB standards online teachers generally perceive to be the least important concern using data to modify instruction and completing professional development.
7. Generally, online teachers report that the national standards are not reflective of the varying roles that online teachers perform.
8. Generally, online teachers are unaware of national standards for online teaching.

Knowledge, Skills, and Dispositions Needed by Online Teachers

9. Online teachers report the following tasks as being frequently performed in their teaching practice:
 - (a) As a matter of policy, online teachers routinely complete course management tasks.
 - (b) Pedagogy is the most frequently performed teaching task.
 - (c) Written communication is the second most frequently performed teaching task.
10. Online teachers report performing some teaching tasks infrequently:
 - (a) Teachers in all four schools rarely provide technology support for students.
 - (b) Written communication tasks such as facilitating collaboration and moderating synchronous and asynchronous chats are rarely or never performed by teachers in two schools.

- (c) Course design tasks are almost never performed by online teachers in two schools while teachers in the other two schools perform them often.
- (d) Few online teachers report using adaptive technologies with online students; however, most online teachers individualize courses for their students.

11. Specific teaching tasks are perceived as being important to online teaching:

- (a) Online teachers generally report that creating tone, maintaining teacher presence, fostering student connection and motivation, responding promptly, and modeling such things as communication skills and netiquette are important written communication skills for online teachers.
- (b) Online teachers generally report that the most important pedagogical tasks are evaluating student products and progress, guiding understanding, and developing intervention plans for unsuccessful students.
- (c) Reviewing courses for accuracy and currency is an important design task for online teachers in all four schools.
- (d) Creating and revising courses are important design tasks for online teachers from two schools.
- (e) Overall, maintaining records of communication with students was the most important course management task reported by online teachers.

Preparation and Support of Online Teachers

12. Increasingly, online teachers are receiving preparation for online teaching before they begin working with students; this preparation is generally provided by their online schools.
13. Many online teachers express interest in ongoing, increasingly challenging professional development related to specific online teaching roles.
14. Some online teachers see themselves as isolated from other practitioners.
15. Many online teachers work part-time and receive no benefits.

This discussion will begin with the limitations of the study. The rest of the discussion section is organized by topic, according to the conclusions just presented.

It is important to understand the limitations to this survey. The sample size is limited, and School 3, which has a unique preparation for its teachers and model for its courses, represents 44.4% of the sample. There are also problems with the survey questionnaire. Moreover, an addition to the interview protocol would have provided richer data.

Several changes would improve the validity of the survey instrument. Teachers should have been asked to rate the frequency and importance of each general category of task as well as specific tasks. Had that been done, the data would clearly show how teachers rated the overall importance of written communication, for example, instead of relying on combining the ratings for a series of written communication tasks, some of which are not important to teachers using a specific course model. In a category such as pedagogy, which contained 29 tasks, all of which were performed to some degree, this omission is not as noticeable. In a category such as written communication, which

contained 15 tasks, four of which were never performed by teachers in some schools, the overall score is of questionable utility.

In addition, written communication task #3 “Deliver content (‘written lectures’)” should have been revised to exclude the phrase *written lectures*, clearly and intentionally *not* a best practice. Written communication item #3, as well as #4, #5, #6, and #7—all of which concern collaboration, community building, and online chats, should have been moved to pedagogy. In one sense, everything in online teaching involves written communication, but those tasks are pedagogical concerns that could also arise in a face-to-face course; teachers would simply use different tools in a face-to-face class.

The part of the survey concerning frequency of completing tasks used a 4-point verbal frequency scale while the part concerning the importance of tasks used a 6-point semantic differential scale. Had the scales for frequency and importance been comparable, it would have been possible to examine the relationship between the frequency and the importance of tasks.

More detailed responses to the national standards would have been possible had interview participants been given a copy of the standards to examine prior to interviews. Most participants had seen the standards only briefly while taking the survey. These changes would have lessened the limitations of this study and added richer detail.

National Standards for Online Teachers

The sets of standards for online teaching set forth by NEA (2006, November) and SREB (2006, October) represented consensus by online education organizations about how to define quality online teaching as of the late fall of 2006. Participants in this study

generally endorse the 2006 standards and the tasks that are embedded in them as being representative of what they need to know and do in their online teaching practice.

Conclusions 1 and 2 reiterate this agreement.

Quantitative data indicate that participants report a slight preference for the NEA standards. Partly this is explained by the SREB standards' lack of reference to dispositions, "voice," or online presence—the human factor. As conclusion 3 states, participants felt that the most important NEA standards relate to being flexible, self-regulated, student-centered, and maintaining high standards. The SREB standards include being student-centered and maintaining high standards; however, the SREB standards are stated largely in terms of observable behaviors, not dispositions.

As conclusion 4 states, participants perceived the SREB standards' most important feature to be written communication skills. In an environment totally dependent on text, teachers need to build an online presence that constructs meaning, communicates questions and ideas, and establishes trust and a personal connection using the written word (Garrison & Anderson, 2003).

Conclusion 5 is recognition that while community building and collaboration may be important, they may not be part of every online course or program. Undoubtedly, Dewey, Vygotsky, and Lave and Wenger would argue that cognition is situated, social, and distributed (Barton, 2000); however, the fact remains that many online learners take online courses because their individual situations demand more flexibility of both time and place than schools can allow (Smith et al., 2005). In order for students to work together to collaborate and build communities, they must all be at the same place at the

same time. Because some course models allow students that flexibility of time—in essence a class of one, their teachers may not need collaboration skills (Watson & Ryan, 2006). This does not mean that these schools cannot provide robust learning opportunities for students as teachers take on new roles. School 3, for example, employs situated cognition and communities of practice, but its model does not support collaboration among students. Student-centered learning can be constructivist and networked (Albion & Maddux, 2007), connectivist (Sammons, 2003), and social (Putnam & Borko, 2000) without necessarily requiring interaction among students who are taking the same course, at the same time, completing the same assignments. As far as using adaptive technologies is concerned, online teachers report individualizing instruction on a one-to-one basis. They do not report having or using adaptive technologies, however. This may change as the technologies become more available and as online programs take advantage of the opportunities for individualized instruction that online learning offers to students with special needs.

The language and organization of the national standards may be a barrier to their being embraced by online teachers. As conclusion 6 notes, participants perceived the SREB standard related to using data from assessments to modify instruction as the least important one. In interviews, several participants expressed the opinion that the SREB standards were written in “educationalese” and contained an excessive emphasis on assessment. Teachers reported that they do not use data to assess and modify instruction, but all report making such modifications; the buzz words *data* and *assessment* may trigger “red flags” for teachers. In addition, three of the eleven SREB standards refer to

assessment; 27.2% of the document specifically relates to assessment. Had the three assessment standards been subsumed under one standard, the emphasis might not seem so disproportionate to practitioners.

As the second part of conclusion 6 states, participants reported in the survey that completing professional development specifically for online teachers was one of the least important SREB standards. As experienced online teachers, many participants from all schools except 3 had originally been “pioneers” in online programs and had little or no preparation themselves. Even so, they rated completing professional development as important. One significant difference between the NEA and SREB standards is that the SREB standards include “The teacher has experienced online learning from the perspective of a student” (SREB, 2006b, p.6). In interviews, all participants voiced the belief that having experience as an online learner is critical to being an effective online teacher. The need for having experience as an online learner was missing from the NEA standards.

As conclusion 7 states, participants perceived the standards as not being reflective of the varying roles that online teachers perform. Specifically, the language of the standards needs to reflect the fact that online teachers may not design courses, utilize collaboration, have course management responsibilities, or perform other teaching tasks, depending on the model their online program utilizes. The standards should recognize this legitimate variability.

A good model for varying roles is that proposed in NACOL’s *Professional Development for Virtual Schooling and Online Learning*. This document proposes three

roles for online teachers: site coordinator, teacher, and designer. It also suggests that practitioners proceed through a series of levels of expertise in a sort of career ladder (Davis & Rose, 2007). This model is what interview participants described as the perfect professional development for online teachers—professional development that recognizes their growing expertise, their evolving roles, and their acceptance of increasing challenges. (See conclusion 13.)

As conclusion 8 states, teachers are not generally aware of national standards for online teaching. Virtual schools have been forced to provide their own teacher preparation because little other training has been available and because most “provide specific guidance on the pedagogy and content to be covered” (Davis & Rose, 2007, p. 9). With little formal preparation for online teaching, it is understandable that many online teachers are unaware of the standards. The only participants who had heard of standards for online teachers were teachers from School 4, a state virtual school that has adopted the SREB standards and uses them as an evaluation tool. The SREB standards are already in use by 16 SREB state virtual schools (SREB, 2007).

NACOL, arguably the premier organization for K-12 online learning in the U. S., was one of the five organizations that collaborated on the NEA standards. NACOL has had links from their homepage to both the NEA and the SREB standards since their release in 2006. Just days ago, NACOL endorsed the SREB standards and published *National Standards for Quality Online Teaching* (2008, February). This new document, which was the result of an exhaustive review of existing online teaching standards and a survey of NACOL members and experts, is based on the 2006 SREB standards. In this

new document, published just 15 months after the original SREB standards, NACOL has added two standards from the Ohio Department of Education's *Ohio Standards for the Teaching Profession* and the Electronic Classroom of Tomorrow's *Teacher Evaluation Rubric* to SREB's eleven existing standards. Twenty task indicators also were added to the original 2006 SREB standards. NACOL's endorsement of the new revised SREB standards may afford the national standards a wider audience beyond Southern Regional states. It may also help that the new standards are more accepting of varying roles for teachers and models for courses; this may make the standards useful to a wider variety of programs.

The 2008 standards recognize the fact that course design is not a responsibility of all online teachers. Five task indicators related to course design were moved from standards relating to technology skills and developing assessment to a new instructional design standard: "The teacher arranges media and content to help students and teachers transfer knowledge most effectively in the online environment" (NACOL, 2008, p. 10). Moreover, this new course design standard is separated from other standards with these words: "These standards are considered optional, as instructional design does not always fall under online teaching responsibilities" (NACOL, 2008, p. 10).

Knowledge, Skills, and Dispositions Needed by Online Teachers

While many researchers and experts (Darabi, Sikorski, & Harvey, 2006; Davis, 2007; Davis & Roblyer, 2005; Goodyear, Salmon, Spector, Steeples, & Tickner, 2001; Watson & Ryan, 2006) state that online teaching requires unique skills as well as all of the skills necessitated by a traditional face-to-face classroom, there is little evidence of

what those skills are outside of what is implied by the standards for online teaching and the reports of practitioners in this study. As conclusions 9.a and 9.b suggest, online teachers report that course management and pedagogy are the most frequently performed teaching tasks; this is understandable since they include ubiquitous tasks required in both online and face-to-face teaching practice.

Given a learning environment in which written text takes the place of most forms of communication and is the primary method for personally connecting to learners, it is not surprising that participants report written communication as the second most frequently performed teaching task, as indicated by conclusion 9.c. Studies show that students are more concerned about instructors' meeting their interpersonal communication needs than their cognitive needs (Dennen, Darabi, and Smith, 2007). Excluding tasks that relate to community, collaboration, and chats, written communication surpasses pedagogy as the most frequently performed type of teaching task.

The standards might suggest that technology use is a frequent or important part of online teachers' practice; however, as conclusion 10.a notes, teachers rarely provide technology support to students. Interview participants reported that feeling "comfortable" with technology is important, though. They reported feeling like they are juggling many tasks, and when a student requires technology support, it needs to be provided immediately. Therefore, while they did not report providing technology support frequently, they did report it as being an important task. As conclusion 10.b notes, written communication tasks such as facilitating collaboration and moderating synchronous and

asynchronous chats are rarely or never performed by many online teachers. One of the three recognized models of online courses is the self-paced model, which does not include interaction with other students (Watson & Ryan, 2006).

The most current data on online schools is restricted to state-led schools. Of those, most are supplemental (Watson & Ryan, 2007). This may explain why online teachers report rarely or never using adaptive technologies, as conclusion 10.d notes. This may change as broadband becomes more ubiquitous, as more and more digital technologies become routinely embedded in online courses, and as online learning becomes a basic part of education for special needs students (Watson, 2007).

As an obvious corollary to conclusion 9.c, that some written communication tasks were performed frequently, conclusion 11.a notes that participants reported specific written communication tasks as being important to online teaching: creating tone, maintaining teacher presence, fostering student connection and motivation, responding promptly, and modeling netiquette and written communication skills. It is not surprising that, as conclusion 11.b notes, participants reported evaluating student products and progress, guiding understanding, and developing intervention plans for unsuccessful students as the most important of the pedagogical tasks. Those tasks are central to teaching in any environment. (See the discussion of conclusions 9.a and 9.b above.)

Conclusion 11.c, the importance of reviewing courses for accuracy and currency, is actually a pedagogical concern even though it is listed as a design issue. All teachers, even those who are not personally responsible for course design, reported a need for this. Partly this is a matter of checking for bad links. Partly this is caused by the fact that

online courses are more likely to include 21st century content that requires constant updating and to employ 21st century skills that are constantly evolving (Darling-Hammond & Bransford, 2005; Watson & Ryan, 2007). For teachers who do perform design tasks, creating and revising courses are important, as conclusion 11.d notes. Conclusion 11.e, teachers report the most important course management task as maintaining records of communication with students, is partially the result of evaluation policies. These records are used as evaluation tools for teachers in all schools except School 3. Also, teachers report using the records of student communication to explain grades and working patterns to parents.

Preparation and Support of Online Teachers

Teachers from all four schools reported that new teachers in their online programs currently receive preparation for online teaching before they begin teaching. This statement, conclusion 12, has not always been the case. Online education has become widely accepted only in the past five years, and there has been disagreement over whether online teachers even require special skills (Davis & Roblyer, 2005). Administrators who are developing online programs often fail to recognize the necessity for preparing online teachers to teach online (Pape, 2007). In 2005, Smith, Clark, and Blomeyer reported that many “teachers currently teaching in online environments lack both the theoretical and practical understanding and are ‘learning on the job’” (p. 59). This has changed for three of the four schools in this study—for the three that have not always had teacher preparation embedded in program design.

Online schools increasingly provide their own preparation and professional development (Blomeyer, 2006). Surveys conducted for *Keeping Pace with K-12 Online Learning* indicate the following about existing professional development in online programs: (a) many programs offer a mixture of online and face-to-face professional development of varying lengths and depth; (b) most programs include online pedagogy, online policies and guidelines, learning management systems, the technology required for course delivery, and virtual school resources; and 3) those supporting specific initiatives such as providing AP courses also provide training relevant to the initiative (Pape, 2007). These statements are true of the schools in this study. Unfortunately, of the 25 online programs profiled in another report, four make no mention of any kind of professional development for online teachers, and two specifically state only that they provide training in the learning management system (Watson & Ryan, 2007).

Conclusion 12 has become a reality for the schools in this study as programs have gained experience and expertise, as educators have accepted the unique demands of online teaching, and as preparation has become more available; however, few teacher preparation programs include virtual schooling, and only four states now have specific endorsements for online teachers (Davis & Rose, 2007). Moreover, research suggests not only that online teachers need professional development related to online schools but also that administrators and other school leaders need preparation (Davis & Rose, 2007). Interview participants confirmed this idea in their comments about principals who have no idea of the realities of online teaching.

Conclusion 13 states that many online teachers express interest in ongoing, increasingly challenging professional development related specifically to online learning. This is the model proposed in an appendix to the NACOL document *Professional Development for Virtual Schooling and Online Learning*. The appendix, “VS [virtual school] professional preparation and development spectrum and continua,” has four stages of development for varying roles related to online schools. Three of the seven roles relevant to this study are site coordinator, teacher, and designer; each role goes through a continua of four stages: preservice, induction, early career, master teacher (Davis & Rose, 2007). The early draft was included in the professional development document “to stimulate consideration and for the evolution of professional development and related research” (Davis & Rose, p. 20) and mirrors the expressed needs of participants.

As indicated by conclusion 14, some online teachers see themselves as isolated from other practitioners. There is little discussion of this in the literature, especially in regard to K-12 teachers. The little research on university faculty indicates that faculty do *not* generally accept online courses as academically valuable (Henke, 2006; Sammons, 2003). Presumably their attitudes toward online faculty are colored by this belief, and the same attitude may be seen in K-12 teachers. Participants report that their contributions are not valued and that they have little in common with peers in their discipline who are not working online. Studies also show that postsecondary online instructors sometimes feel distant from their students and the colleagues (Coppola, Hiltz, & Rotter, 2001).

There is little hard data available on working conditions for secondary online teachers. Conclusion 15, many online teachers work part-time and receive no benefits, is

true of the participants of this study and may be true of online teachers in general. There is little data available about K-12 online teachers in general since reporting requirements are almost nonexistent. Data on the state virtual schools are now more available, but they may or may not be representative of most online teaching, and participation is voluntary and fragmentary.

One aspect of the working conditions of online teachers relates to evaluation. Participants report that online teachers are held to higher standards than classroom teachers and are more systematically and thoroughly evaluated. This is possible because interaction with students is made transparent through the course management software. Every assignment, every grade, every interaction with a student is recorded for administrators to evaluate. According to participants, this makes them more intentional and reflective. The supplemental, public, experimental, and tenuous nature of online programs make them more susceptible to and interested in what is often referred to as “quality assurance”; most are very aware of parents and students as customers and of teachers as service providers. This demand for consistently high quality service can become problematical since numerous studies (Hughes et al., 2005; Kleinman et al., 2005; Lowes, 2005) have found that “present demands on virtual school teachers were burdensome to reasonably assume within the available instruction time” (cited in Smith et al., 2005, p. 61).

Fewer than half of the participants in this study work full time although all reported putting in *at least* a 40-hour week on their online courses. The U. S. Department of Education’s (2007) summary of online AP offerings demonstrates the lack of

information on salaries and employment status: only two of the six schools profiled in the report provided any details about payment, and one of those simply stated that pay was based on students' successful completion of courses. The loose structure of online programs, the unavailability of information on online teachers, and the part-time nature of most online positions suggest that working conditions for online teachers may constitute a problem.

Recommendations

As a result of this study, the researcher makes the following recommendations for online teachers, teacher educators, and policymakers as well as for future research.

Online Teachers

- *Identify other online teachers and develop both formal and informal organizations for online teachers who share content and course model interests.* It is important that online teachers collaborate with each other. Moreover, it is important that online teachers develop a collective voice that can be identified and accessed easily by teacher educators and policymakers to help inform decisions regarding what is best for their students and their own professional development. Also, online teachers may represent our best hope of collecting more comprehensive data about online learning in the U. S. with their existing networks.
- *Create online publications and spaces for online teachers to collaborate, share content and pedagogical information, and develop a sense of community and collegiality.* Many participants mentioned wanting a publication with relevant information on teaching their content area online or a chat room in which to

communicate with other people who understand the special opportunities and challenges of online teaching. The spaces that do exist are organized and monitored by programs. While such spaces may serve useful in-house functions, online teachers need “rooms of their own” in which to tackle problems without fear of being misunderstood or evaluated by supervisors.

- *Join existing organizations devoted to online learning that offer the latest research, best practices, and policy related to online learning; become active in advocating for online learning and online teachers.* Many education experts see online learning as that which can reform American education. For reform to take place in today’s climate, reform must be an equal collaboration among stakeholders. For teachers to have a voice in that collaboration, they must assume responsibility for being as well-informed as possible and for engaging in the public dialog. Online teachers need to use their information use skills to keep abreast of new developments.

Teacher Educators

- *Include courses in online pedagogy in preservice teacher preparation programs.* Given the growth of online learning, all current preservice teachers will engage in at least some form of online teaching during their careers. We now understand that online teaching requires special skills. Credentialing today teachers who have no background in online learning is tantamount to credentialing teachers who have no background in working with special needs students.

- *Require that preservice teachers take online courses in their content areas.* It is apparent from participants that experience as an online learner is an important component to effective online teaching. Moreover, content areas utilize different methods in online courses just as they do in face-to-face classes. Preservice teachers need to experience online learning in the discipline in which they will teach to fully appreciate the consequences of their pedagogical decisions later.
- *Develop ongoing professional development to help online teachers continue to grow in expertise and knowledge as they move through the various stages and roles that may be demanded of online teachers.* Perhaps professional development for online teachers may not be provided by traditional teacher educators. For one thing, technology will continue to evolve, and online teachers must continually be updated to use best practices and to feel comfortable in the evolving online environment. Teacher education programs may not be able to acclimate to this constant need to keep their own skills current; however, having each online program develop its own professional development is expensive and time-consuming. As online programs become less frenzied and recognizable models for online programs stabilize, quality teacher education and professional development programs, which are created online and are specifically geared to online teaching, may emerge to meet this need.

Policymakers

- *Define and differentiate the various teaching roles online teachers may legitimately fill.* Online learning is often the result of collaboration among many

educators. Standards, job descriptions, evaluations, and procedures need to reflect this. If Teacher A's pay depends on Teacher B's requiring a student to stay on task 90 minutes a day 300 miles away in another part of the state, it is critical that each teacher's responsibilities be clearly stated, understood, and performed. If Teacher C's pay is based on an hourly wage that does *not* include time for course design and depends on the success of a student in a biology class designed by Teacher D, who is a physics teacher, responsibility and remuneration for reshaping the course to meet the student's needs must be addressed.

- *Establish and adopt online teaching standards that carefully delineate separate tasks related to pedagogy, design, collaboration, and written communication.*

Standards used for preparing and evaluating online teachers should be expressed in a way that clearly identifies the teaching responsibilities relevant to the specific course model being used rather than serving as a global list of all possible tasks in all possible course models.

- *Examine working conditions for online teachers and implement policies to protect them from becoming part-time workers whose contributions to public education are unrecognized.* Online teachers are isolated from each other and from the education establishment. Moreover, many in education perceive them to have a “cushy” job requiring little effort or expertise. As online learning becomes more accepted, this perception may change. However, there is danger that the temporary measures put into place as school districts are figuring out how online learning fits into their overall budget and program will become engraved in practice—with

online teachers being seriously underpaid and overworked. In many cases, they have no idea what other teachers in comparable situations are being paid. In most cases, no one has any idea of what is reasonable remuneration. Since online teaching tends to blend in with daily home life, many online teachers are not even aware of the hours they devote to their teaching. Just as new funding models are required for online schools, new models need to be designed for teacher payment and work schedules.

Future Research

- Conduct a thorough national survey to describe K-12 online teachers and K-12 online programs.
- Conduct a national survey of the working hours, part-time or full-time status, and pay of online teachers.
- Define a continuum of stages that online teachers may pass through as they gain expertise and change online teaching roles: preservice teacher, induction stage teacher, early career teacher, and master teacher.
- Identify and assess both preservice and inservice professional development for online teachers.
- Explore the ways that pedagogy differs in online, hybrid, and face-to-face courses.
- Examine the differential effects of various online course models and teaching strategies on teacher satisfaction and student outcomes.

Appendix 1: Rationale for Task/Competency Revisions

Legend for Original Source of Task: ^N = NEA Skill or ^S = SREB Indicator. The numbers after <i>N</i> refer to the 19 NEA Section IV "Skills of Online Teachers," which are listed but not numbered in the <i>Guide to Teaching Online Courses</i> . The numbers and letters after <i>S</i> refer to the standards (numbers) and indicators (letters) beneath each of the 11 standards, which are listed but not numbered or lettered in <i>Standards for Quality Online Teaching</i> .		
Legend for Rationale for Revising or Deleting Skill/Indicator to Create Task: 1 = Eliminate items that are redundant; select the most concise version or create a concise version. 2 = Separate items that have two or more discrete tasks embedded together. 3 = Simplify language, especially if it confused respondents during the pilot test. 4 = Phrase competencies in terms of observable behaviors. 5 = Delete qualifiers. 6 = Omit items if content is too vague to state clearly. 7 = Omit items if not observable. 8 = Omit item if it relates to teacher preparation or subject area content.		
Revised Task/Competency Used in This Study	Original Skills & Indicators of NEA ^N & SREB ^S	Rationale(s) for Revision
<i>Written Communication</i>		
1. Provide feedback for assignments	~Provides timely, constructive feedback to students about assignments and questions. ^{S4h} ~Encourages interaction and cooperation among students, encourages active learning, provides prompt feedback, communicates high expectations, and respects diverse talents and learning styles. ^{S4b} ~Provide appropriate and timely feedback to students. ^{N11}	1, 2, 4, 5
2. Answer questions	~Provides timely, constructive feedback to students about assignments and questions. ^{S4h} ~Participate and be present in an online course, meeting student needs and school expectations for teacher presence. ^{N12}	2, 4, 5
3. Deliver content (written "lectures")	~This is a <i>negative</i> form of an SREB indicator: Demonstrates effective strategies and techniques that actively engage students in the learning process (e.g., team problem-solving, in-class writing, analysis, synthesis and evaluation instead of passive lectures). ^{S3a}	[See note to left.]
4. Facilitate collaborative learning	~Facilitates and monitors appropriate interaction among students. ^{S3b} ~Promotes learning through group interaction. ^{S3d}	1, 4, 5

	~Encourages interaction and cooperation among students. ^{S7d} ~Establishes and maintains ongoing and frequent student-student interaction. ^{S4d} ~Foster student-to-student collaboration. ^{N10} ~Encourages collaboration and interaction among all students. ^{S7d}	
5. Facilitate virtual community building	~Builds and maintains a community of learners by creating a relationship of trust, demonstrating effective facilitation skills, establishing consistent and reliable expectations, and supporting and encouraging independence and creativity. ^{S3c} ~Encourages interaction and cooperation among students, encourages active learning, provides prompt feedback, communicates high expectations, and respects diverse talents and learning styles. ^{S4b} ~Establishes and maintains ongoing and frequent teacher-student interaction, student-students interaction and teacher-parent interaction. ^{S4d} ~Encourages collaboration and interaction among all students. ^{S7d}	1, 4, 5
6. Facilitate synchronous, real time chats	~Foster student-to-student discussion. ^{N9} ~Utilizes synchronous and asynchronous tools (e.g., discussion boards, chat tools, electronic whiteboards) effectively. ^{S2e} ~Builds and maintains a community of learners by creating a relationship of trust, demonstrating effective facilitation skills, establishing consistent and reliable expectations, and supporting and encouraging independence and creativity. ^{S3c} ~Encourages collaboration and interaction among all students. ^{S7d}	1, 2, 4, 5
7. Facilitate asynchronous discussion board chats	~Utilizes synchronous and asynchronous tools (e.g., discussion boards, chat tools, electronic whiteboards) effectively. ^{S2e} ~Builds and maintains a community of learners by creating a relationship of trust, demonstrating effective facilitation skills, establishing consistent and reliable expectations, and supporting and encouraging independence and creativity. ^{S3c} ~Encourages collaboration and interaction among all students. ^{S7d}	1, 2, 4, 5
8. Facilitate individual student participation	~Establishes and maintains ongoing and frequent teacher-student interaction, student-students interaction and teacher-	2

	parent interaction. ^{S4d}	
9. Foster student connection or motivation	~Communicate appropriately with students in one-on-one and group settings. ^{N14} ~Provides timely, constructive feedback to students about assignments and questions. ^{S4h}	1, 5
10. Focus on creating a specific tone	~Communicate an appropriate online tone during course delivery. ^{N8}	5
11. Maintain “teacher presence”	~Participate and be present in an online course, meeting student needs and school expectations for teacher presence. ^{N12} ~Establishes and maintains ongoing and frequent teacher-student interaction, student-students interaction and teacher-parent interaction. ^{S4d}	1, 3
12. Guide students’ time management	~Uses student data to inform instruction, guides and monitors students’ management of their time, monitors learner progress with available tools and develops an intervention plan for unsuccessful learners. ^{S4g}	2
13. Demonstrate online etiquette	~Demonstrates effective use of Internet browsers, e-mail applications and appropriate online etiquette. ^{S2b}	2, 4, 5
14. Teach online etiquette	~Foster student-to-student discussion. ^{N9} ~Foster student-to-student collaboration. ^{N10}	4
15. Model written communication skills	~Consistently models effective communication skills and maintains records of applicable communications with students. ^{S4a} ~Communicate appropriately with students in one-on-one and group settings. ^{N14} ~Demonstrates effective use of Internet browsers, e-mail applications and appropriate online etiquette. ^{S2b}	1, 2, 4, 5
16. Teach written communication skills	~Foster student-to-student discussion. ^{N9} ~Foster student-to-student collaboration. ^{N10}	4
<i>Pedagogy</i>		
17. Evaluate students’ participation	~Keep track of student participation in online course. ^{N18} ~Facilitates and monitors appropriate interaction among students. ^{S3b} ~Provides continuous evaluation of students to include pre- and post-testing and student input throughout the course. ^{S9d}	1, 2, 4, 5
18. Evaluate students’ products	~Provides continuous evaluation of students to include pre- and post-testing and student input throughout the course. ^{S9d}	2, 4
19. Evaluate students’ progress	~Uses student data to inform instruction, guides and monitors students’ management of their time, monitors learner progress with available tools and develops an intervention plan for unsuccessful learners. ^{S4g}	1, 2, 4, 8

	<p>~Exhibits the ability to assess student knowledge and instruction in a variety of ways.^{S7e}</p> <p>~Provides continuous evaluation of students to include pre- and post-testing and student input throughout the course.^{S9d}</p>	
20. Use objective tests to assess student progress	~Creates assignments, projects and assessments that are aligned with students' different visual, auditory and hands-on ways of learning. ^{S9b}	2, 4
21. Use authentic assessments to evaluate student progress	<p>~Provides student-centered lessons and activities that are based on concepts of active learning and that are connected to real-world applications.^{S7f}</p> <p>~Includes authentic assessment (i.e., the opportunity to demonstrate understanding of acquired knowledge and skills as opposed to testing isolated skills or retained facts) as part of the evaluation process.^{S9c}</p>	1, 2, 3, 4
22. Use essays to assess student progress	~Creates assignments, projects and assessments that are aligned with students' different visual, auditory and hands-on ways of learning. ^{S9b}	2, 4
23. Use informal Q & A to assess student progress	~Creates assignments, projects and assessments that are aligned with students' different visual, auditory and hands-on ways of learning. ^{S9b}	2, 4
24. Guide students' independence	~Builds and maintains a community of learners by creating a relationship of trust, demonstrating effective facilitation skills, establishing consistent and reliable expectations, and supporting and encouraging independence and creativity. ^{S3c}	2
25. Guide students' creativity	~Builds and maintains a community of learners by creating a relationship of trust, demonstrating effective facilitation skills, establishing consistent and reliable expectations, and supporting and encouraging independence and creativity. ^{S3c}	2
26. Ask questions	~Creates assignments, projects and assessments that are aligned with students' different visual, auditory and hands-on ways of learning. ^{S9b}	2, 4
27. Use explanations	~Creates assignments, projects and assessments that are aligned with students' different visual, auditory and hands-on ways of learning. ^{S9b}	2, 4
28. Use examples	~Creates assignments, projects and assessments that are aligned with students' different visual, auditory and hands-on ways of learning. ^{S9b}	2, 4
29. Guide understanding of	~Demonstrates effective strategies and	2, 3, 5

concepts	techniques that actively engage students in the learning process. ^{S3a}	
30. Stimulate or sustain student engagement	~Demonstrates effective strategies and techniques that actively engage students in the learning process. ^{S3a}	2, 3, 5
31. Foster information use skills	~Demonstrates effective strategies and techniques that actively engage students in the learning process. ^{S3a} ~Demonstrates effective use of Internet browsers, e-mail applications and appropriate online etiquette. ^{S2b}	2, 3, 5
32. Foster technology skills	~Demonstrates effective strategies and techniques that actively engage students in the learning process. ^{S3a} ~Demonstrates effective use of Internet browsers, e-mail applications and appropriate online etiquette. ^{S2b}	2, 3, 5
33. Use tracking data such as email, web logs, posts to monitor course progress and effectiveness;	~Uses observational data (e.g., tracking data in electronic courses, Web logs, e-mail) to monitor course progress and effectiveness. ^{S10c}	3
34. Model use of electronic or written sources	~Uses course content that complies with intellectual property rights policies and fair use standards. ^{S5e} ~Demonstrates effective use of Internet browsers, e-mail applications and appropriate online etiquette. ^{S2b}	1, 4, 5
35. Teach use of electronic or written sources	~Facilitates student investigations of the legal and ethical issues related to technology and society. ^{S5a} ~Establishes standards for student behavior that are designed to ensure academic integrity and appropriate uses of the Internet and written communication. ^{S5b} ~Identifies the risks of academic dishonesty for students. ^{S5c} ~Demonstrates an awareness of how the use of technology may impact student testing performance. ^{S5d}	1, 4
36. Foster use of electronic or written sources	~Demonstrates knowledge of resources and techniques for dealing with issues arising from inappropriate use of electronically accessed data or information. ^{S5g}	4
37. Administer assessments in such as way as to assure validity and reliability	~Implements online assessment measures and materials in ways that ensure instrument validity and reliability. ^{S8b}	2, 3
38. Maintain order & appropriate behavior	~Intervene appropriately when students misbehave online. ^{N13}	4
39. Adapt instruction to meet individual needs	~Uses student data to inform instruction, guides and monitors students' management of their time, monitors learner progress with available tools and develops an intervention	1, 2, 3

	plan for unsuccessful learners. ^{S4g} ~Adapts and adjusts instruction to create multiple paths to learning objectives. ^{S7c} ~Differentiates instruction based on students' learning styles and needs and assists students in assimilating information to gain understanding and knowledge. ^{S3g} ~Demonstrates knowledge and responds appropriately to the cultural background and learning needs of non-native English speakers. ^{S3f}	
40. Adapt instruction based on student performance	~Differentiates instruction based on students' learning styles and needs and assists students in assimilating information to gain understanding and knowledge. ^{S3g}	2
41. Create valid, reliable assessments	~Creates or selects fair, adequate and appropriate assessment instruments to measure online learning that reflect sufficient content validity (i.e., that adequately cover the content they are designed to measure), reliability and consistency over time. ^{S8a}	2, 3
42. Develop intervention plans for unsuccessful students	~Uses student data to inform instruction, guides and monitors students' management of their time, monitors learner progress with available tools and develops an intervention plan for unsuccessful learners. ^{S4g}	2
43. Contact parents	~Communicate with students, parents, school administrators, and other teachers via a variety of online and traditional means. ^{N15} ~Establishes and maintains ongoing and frequent teacher-student interaction, student-students interaction and teacher-parent interaction. ^{S4d}	1, 2, 3
44. Contact other teachers or school officials	~Communicate with students, parents, school administrators, and other teachers via a variety of online and traditional means. ^{N15}	1, 2, 3
<i>Technology Use</i>		
45. Provide students with basic software support	~Provide students with basic technical support services, recognizing which issues should be forwarded to technical support teams. ^{N19} ~Troubleshoots typical software and hardware problems. ^{S2f}	1, 2, 4
46. Provide students with basic hardware support	~Provide students with basic technical support services, recognizing which issues should be forwarded to technical support teams. ^{N19} ~Troubleshoots typical software and hardware problems. ^{S2f}	1, 2, 4

47. Refer students to technology support professionals	~Provide students with basic technical support services, recognizing which issues should be forwarded to technical support teams. ^{N19}	1, 2, 4
48. Use word processing software	~Demonstrates the ability to effectively use word-processing, spreadsheet and presentation software. ^{S2a}	2, 5
49. Use spreadsheet software	~Demonstrates the ability to effectively use word-processing, spreadsheet and presentation software. ^{S2a}	2, 5
50. Use presentation software	~Demonstrates the ability to effectively use word-processing, spreadsheet and presentation software. ^{S2a}	2, 5
51. Use an Internet browser	~Demonstrates effective use of Internet browsers, e-mail applications and appropriate online etiquette. ^{S2b}	2, 5
52. Use email	~Demonstrates effective use of Internet browsers, e-mail applications and appropriate online etiquette. ^{S2b}	2, 5
53. Use hypermedia resources	~Incorporate Internet resources into course documents. ^{N7}	1
54. Inform students of acceptable use policies	~Provides students with an understanding of the importance of Acceptable Use Policies (AUP). ^{S5f}	4
55. Inform students of the right to privacy with online submissions	~Informs students of their right to privacy and the conditions under which their names or online submissions may be shared with others. ^{S5h}	1
56. Use course or learning management systems (such as WebCT or BlackBoard)	~Demonstrates the ability to modify and add content and assessment, using an online Learning Management System (LMS). ^{S2c}	2, 4
<i>Course Design</i>		
57. Review course documents for accuracy or currency	~Revise/write course documents in CMS. ^{N2}	2
58. Revise course documents to maintain accuracy or currency	~Revise course documents to maintain accuracy and currency. ^{N6}	2
59. Modify or add content to existing online courses	~Demonstrates the ability to modify and add content and assessment, using an online Learning Management System (LMS). ^{S2c}	1, 4
60. Incorporate multimedia and visual resources into an online module	~Incorporates multimedia and visual resources into an online module. ^{S2d} ~Demonstrates the ability to effectively use and incorporate subject-specific and developmentally appropriate software in an online learning module. ^{S2g}	1, 2
61. Modify or design assessments	~Demonstrates the ability to modify and add content and assessment, using an online Learning Management System (LMS). ^{S2c}	2, 3, 4
62. Create content for new online courses	~Design, evaluate and deliver online course to appropriate online design and content standards. ^{N4}	2, 3

63. Upload new courses to the Internet	~Design, evaluate and deliver online course to appropriate online design and content standards. ^{N4}	2, 3
64. Review course materials for alignment with course objectives or state and/or local standards	~Design, evaluate and deliver online course to appropriate online design and content standards. ^{N4} ~Continually reviews all materials and Web resources for their alignment with course objectives and state and local standards and for their appropriateness. ^{S9a}	1, 2, 4, 5
65. Revise course materials for alignment with course objectives or state and/or local standards	~Design, evaluate and deliver online course to appropriate online design and content standards. ^{N4} ~Continually reviews all materials and Web resources for their alignment with course objectives and state and local standards and for their appropriateness. ^{S9a}	1, 2, 4, 5
<i>Course Management</i>		
66. Track student registration	~Track whether students are registered/enrolled in the course. ^{N17}	3
67. Assess students' readiness for course content	~Provides continuous evaluation of students to include pre- and post-testing and student input throughout the course. ^{S9d} ~Employs ways to assess student readiness for course content and method of delivery. ^{S11a}	1, 2, 3
68. Assess students' readiness for delivery method	~Employs ways to assess student readiness for course content and method of delivery. ^{S11a}	2, 3
69. Make course materials available to students	~Provide course materials to students in a timely manner. ^{N16}	5
70. Give students expectations about teacher response time	~Gives students clear expectations about teacher response time. ^{S4f}	5
71. Maintain records of communication with students	~Consistently models effective communication skills and maintains records of applicable communications with students. ^{S4a}	2, 5
72. Explain course organization	~Provides an online syllabus that details the terms of class interaction for both teacher and students, defines clear expectations for both teacher and students, defines the grading criteria, establishes inappropriate behavior criteria for both teacher and students, and explains the course organization to students. ^{S4e}	2, 3, 5
73. Provide procedures and grading criteria	~Builds and maintains a community of learners by creating a relationship of trust, demonstrating effective facilitation skills, establishing consistent and reliable expectations, and supporting and encouraging independence and creativity. ^{S3c} ~Provides an online syllabus that details the	2, 3, 4, 5

	terms of class interaction for both teacher and students, defines clear expectations for both teacher and students, defines the grading criteria, establishes inappropriate behavior criteria for both teacher and students, and explains the course organization to students. ^{S4e}	
74. Provide interaction expectations	<p>~Builds and maintains a community of learners by creating a relationship of trust, demonstrating effective facilitation skills, establishing consistent and reliable expectations, and supporting and encouraging independence and creativity.^{S3c}</p> <p>~Provides an online syllabus that details the terms of class interaction for both teacher and students, defines clear expectations for both teacher and students, defines the grading criteria, establishes inappropriate behavior criteria for both teacher and students, and explains the course organization to students.^{S4e}</p>	2, 3, 4, 5
75. Provide behavior expectations	<p>~Builds and maintains a community of learners by creating a relationship of trust, demonstrating effective facilitation skills, establishing consistent and reliable expectations, and supporting and encouraging independence and creativity.^{S3c}</p> <p>~Provides an online syllabus that details the terms of class interaction for both teacher and students, defines clear expectations for both teacher and students, defines the grading criteria, establishes inappropriate behavior criteria for both teacher and students, and explains the course organization to students.^{S4e}</p>	2, 3, 4, 5
76. Provide objectives and learning outcomes	<p>~Builds and maintains a community of learners by creating a relationship of trust, demonstrating effective facilitation skills, establishing consistent and reliable expectations, and supporting and encouraging independence and creativity.^{S3c}</p> <p>~Provides an online syllabus that details the terms of class interaction for both teacher and students, defines clear expectations for both teacher and students, defines the grading criteria, establishes inappropriate behavior criteria for both teacher and students, and explains the course organization to students.^{S4e}</p> <p>~Provides a syllabus with objectives, concepts and learning outcomes in a clearly written, concise format.^{S4f}</p>	2, 3, 4, 5

Guide to Teaching Online Courses, which includes the NEA standards and skills, is available at http://www.nea.org/technology/images/online_teachguide.pdf.

Standards for Quality Online Teaching, which include the SREB standards and indicators, is available at http://www.sreb.org/programs/EdTech/pubs/PDF/06T02_Standards_Online_Teaching.pdf.

The standards, skills, or Indicators below were omitted. The numbering of NEA standards and the lettering of SREB indicators are mine.

NEA Standard 1: Understand the language of online education (Reason 6).

NEA Standard 3: Use CMS elements effectively to facilitate course design (Reason 6).

NEA Standard 5: Use technology to support course design (Reason 6).

SREB Standard 1: *The teacher meets the professional teaching standards established by a state-licensing agency or the teacher has academic credentials in the field in which he or she is teaching* (Entire standard omitted; Reason 8).

SREB Standard 2 Indicator G: Incorporate subject-specific content and relevant software into an online module (Reason 1).

SREB Standard 2 Indicator H: Demonstrates growth in technology knowledge and skills in order to stay current with emerging technologies was omitted (Reason 8).

SREB Standard 3 Indicator A: Promotes learning through group interaction (Reason 7).

SREB Standard 3 Indicator B: Leads online instruction groups that are goal-oriented, focused, project-based and inquiry-oriented (Reason 7).

SREB Standard 3 Indicator H: Demonstrates growth in teaching strategies in order to benefit from current research and practice (Reason 8).

SREB Standard 4 Indicator C: Persists, in a consistent and reasonable manner, until students are successful (Reason 7).

SREB Standard 6: *The teacher has experienced online learning from the perspective of a student* (Entire standard omitted; Reason 8).

SREB Standard 7 Indicator A: Understands that students have varied talents and skills and uses appropriate strategies designed to include all students (Reason 8).

SREB Standard 7 Indicator B: Provides activities, modified as necessary, that are relevant to the needs of all students (Reason 8).

SREB Standard 8: *The teacher demonstrates competencies in creating and implementing assessments in online learning environments in ways that assure validity and reliability of instruments and procedures* (Entire standard omitted; Reason 8).

SREB Standard 9 Indicator E: Demonstrates an understanding of the relationships between and among the assignments, assessments and standards-based learning goals (Reason 8).

SREB Standard 10: *The teacher demonstrates competencies in using data and findings from assessment and other data sources to modify instructional methods and content and to guide student learning.* (Entire standard omitted except for Indicator C, which relates to this environment specifically: Uses observational data (e.g., tracking data in electronic courses, Web logs, e-mail) to monitor course progress and effectiveness; Reason 8).

SREB Standard 11: *The teacher demonstrates frequent and effective strategies that enable both teacher and students to complete self- and pre-assessments* (Entire standard omitted; Reason 8).

Appendix 2: Pilot Study Recommendations

Respondents were seven experienced online teachers. The pilot study was conducted between April 28, 2007 and May 6, 2007.

One or more respondents identified these problems, and the necessary corrections/changes were made in the survey questionnaire:

1. Technology Use: Change *synchronous* and *synchronous* to *synchronous* and *asynchronous*.
2. Technology Use: Change layout so that the labels on the scales can be seen for all items.
3. Course Design: If teachers are teachers as well as designers rather than teachers who do design, they won't know how to complete this section. Make it clear whether you are asking about their work as teachers or separate work as designers.
4. Course Management: The scale doesn't work. These tasks are done once with each student, but only once. It's had to know what option on the scale to select. [The scale term *constantly* was changed to *never* to better reflect actual behavior.]
5. All Categories: Some competencies include two things; I might do one but not the other. [Each competency was separated so that it only covers one activity.]
6. All Categories: Make competencies behavior that can be observed.
7. All Categories: Get rid of qualifiers like *effectively*, *quickly*—they mean something different to each of us.
8. All Categories: Shorten directions.
9. Comparing Standards: It is hard to know what you are referring to. It wasn't clear that I had just looked at two separate sets of standards. Label these more clearly so that respondents know what they are comparing.
10. Demographics: Separate certification and teaching load.
11. Demographics: Separate the three choices about preparation for online learning into three separate questions—too confusing.
12. Demographics: The part about course platforms and design experience is too confusing. Separate it or delete it.
13. Time: The survey took less than 20 minutes for each respondent. [This is not a problem, but participants were asked to time how long the survey took.]

Appendix 3: Email Inviting Teachers to Participate in the Survey Questionnaire

Dear Online Teacher,

If you are like most teachers I know, you are swamped with work—but please don't delete this request for help yet! I'm a high school English teacher who is also an online teacher like you. As part of my doctoral dissertation, I'm studying online teaching—specifically what online teachers think. I would appreciate it if you would share your expertise and experience by taking a survey. It shouldn't take more than 30 minutes. Your identity will be totally confidential; you won't be required to identify yourself in any way beyond letting me know which online program you work with.

I am attaching a sample informed consent form that explains the study and your role. This form is repeated on the first page of the survey, which is online. You must consent in order for me to include your survey responses in my research by clicking on the send button on the informed consent form.

Here is the link to the survey: <http://vhs.gmu.edu/Evals/rconsent.aspx>. It will be open for two weeks. If you have any questions or concerns, please call me (540-226-7737) or email me (rsmithm@gmu.edu). You may also contact my advisor, Dr. Priscilla Norton of the George Mason University Graduate School of Education, at 703-993-2015 or the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

Again, thank you!

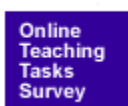
Robin

**Attach informed consent form #2.*

Appendix 4: Online Teaching Tasks Survey Questionnaire

This survey may also be found at this website:

<http://vhs.gmu.edu/Evals/rsurveyindex.aspx>



Online Teaching Tasks Survey Homepage

The first standards designed specifically for K-12 online teaching are less than a year old. As part of my doctoral dissertation, I am conducting a study to assess how relevant these standards are considering the specific tasks online teachers actually perform. I need your help.

This entire survey should take about 30 minutes. I realize this is a huge time commitment for a busy teacher, but I hope you will consider doing this as a service to the teaching profession--and to me.

There are three sections to this survey: 1) consent and demographics, which gives me permission to use your responses and helps me to describe survey participants; 2) frequency and importance of tasks, the longest and most difficult part; and 3) national standards, which is short. **After you submit each section, you will be automatically returned to this index page and should then continue to the next section.** You'll be asked to indicate your online school in each section--and may get sick of clicking it, but this information is critical since teachers using different online platforms may have very different experiences.

Please start by clicking on Part 1 below.

Part 1. [Consent Form & Demographics](#)

Part 2. [Frequency & Importance of Tasks](#)

Part 3. [National Standards](#)

After you submit Part 3, you have completed the entire survey! I appreciate your patience and help.

If you'd like more information about online teaching standards, check out these websites:

<http://www.nacol.org>

<http://www.sreb.org/programs/EdTech/pubs/PDF/StandardsQualityOnlineTeaching.asp>

<http://www.nea.org/technology/images/onlineteachguide.pdf>

Part 1:

Part 1. Informed Consent Form

Research Procedures: This research is being conducted to assess online teachers' perceptions of the knowledge and skills needed for online teaching. Teachers who agree to participate will answer an online questionnaire, which will take approximately 30 minutes to complete. Later, eight volunteers will also be asked to participate in interviews, which will take 60 to 90 minutes.

Risks: There are no foreseeable risks for participating in this research.

Benefits: There are no benefits to you as a participant other than knowing you have helped to assure that teachers' voices will be included in the research about online teaching.

Confidentiality: The data in this study will be confidential. The data will be stored on George Mason University's servers, and participants' responses will be downloaded in an MS Excel file format without any identifiers. Neither the survey nor the research includes names or other personal information. Only the researcher will have access to participants' responses. While it is understood that no computer transmission can be perfectly secure, reasonable efforts will be made to protect the confidentiality of your transmission.

Participation: Your participation is voluntary, and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

Contact: This research is being conducted by Robin D. Smith, a doctoral candidate at George Mason University. She may be reached at 703-993-2019 for questions or to report a research-related problem. You may also contact her advisor, Dr. Priscilla Norton of the George Mason University Graduate School of Education, at 703-993-2015. You may contact the George Mason University Office of Research Subject Protections at 703-993-

4121 if you have questions or comments regarding your rights as a participant in the research. This research has been reviewed according to George Mason University procedures governing your participation in this research.

Consent: The George Mason University Human Subjects Review Board has waived the requirement for signing the consent form. However, if you would like to sign a consent form before beginning the survey, please contact Dr. Priscilla Norton at 703-993-2015 or pnorton@gmu.edu.

Version date: May 4, 2007

If you consent, please continue with this survey by clicking below.

Part 1. Demographics

This information is critical to showing patterns and establishing a context for your responses, so please answer these questions before you begin the survey.

1. I currently (or most recently) teach online courses for

- | | |
|----------------------------|-------------------------------------|
| <input type="radio"/> CCPS | <input type="radio"/> V V |
| <input type="radio"/> PWCS | <input type="radio"/> None of these |
| <input type="radio"/> TOA | |

2. Which best describe the courses you have taught online? (Select all that apply.)

- | | |
|--|---|
| <input type="checkbox"/> None | <input type="checkbox"/> Math |
| <input type="checkbox"/> Art/Music | <input type="checkbox"/> Science |
| <input type="checkbox"/> Business/Technology | <input type="checkbox"/> Social Studies |
| <input type="checkbox"/> Foreign Language | <input type="checkbox"/> Other Content Area |
| <input type="checkbox"/> English/Language Arts | |

3. Which choices best describe the courses you are licensed to teach in Virginia? (Select all that apply.)

- | | |
|--|---|
| <input type="checkbox"/> None | <input type="checkbox"/> Math |
| <input type="checkbox"/> Art/Music | <input type="checkbox"/> Science |
| <input type="checkbox"/> Business/Technology | <input type="checkbox"/> Social Studies |
| <input type="checkbox"/> Foreign Language | <input type="checkbox"/> Other Content Area |
| <input type="checkbox"/> English/Language Arts | |

4. Which group best describes your years of experience as a classroom teacher?

- | | |
|----------------------------------|--|
| <input type="radio"/> None | <input type="radio"/> 11-20 years |
| <input type="radio"/> 1-5 years | <input type="radio"/> More than 20 years |
| <input type="radio"/> 6-10 years | |

5. Which group best describes your years of experience as an online teacher?

- | | |
|----------------------------------|--|
| <input type="radio"/> None | <input type="radio"/> 11-15 years |
| <input type="radio"/> 1-5 years | <input type="radio"/> More than 15 years |
| <input type="radio"/> 6-10 years | |

6. Which best describes your education?

- | | |
|---|--|
| <input type="radio"/> Bachelor's degree | <input type="radio"/> Master's degree + 15 |
| <input type="radio"/> Master's degree | <input type="radio"/> Doctorate |

7. Which best describes your formal preparation for online teaching?

- ☐ No courses specifically in online teaching
- ☐ Non-credit continuing education courses in online teaching
- ☐ 1-6 credit hours of course work in online teaching
- ☐ 7-15 credit hours of course work in online teaching
- ☐ More than 15 credit hours of course work in online teaching

8. Which best describes your experience as an online learner? (I am defining *online course* here as a class that is held at least 80% online.)

- ☐ I have taken one or more online courses in how to teach online; I have also taken at least one other online course.
- ☐ I have taken one or more online courses in how to teach online.
- ☐ I have taken at least one online course but none in how to teach online.
- ☐ I have never taken an online course.

9. Have you had any experience as an online course designer?

☐ Yes ☐ No

10. What is your gender?

☐ Female ☐ Male

11. Which group best describes your technology skill level right now?

☐ Enthusiastic Beginner ☐ Comfortable User
☐ Reluctant User ☐ Confident Explorer

12. Which age group best describes you?

☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐ 60+

13. We would also like to conduct personal interviews with two teachers from each online school. If you consent to be interviewed about online teaching--in person, by phone, or by email, please put your email address here. Please leave this blank if you do *not* consent to be interviewed :-)

Please continue to Part 2 after clicking Send below.

Part 2:

Part 2. Directions

Please make two choices for each each task: frequency and importance.

Please indicate *how often you actually perform the task in your own most current online teaching practice* by selecting a number on the scale to the left of the task. Your choices range from *never* (1) to *constantly* (4) for most of this section and from *never* (1) to *always* (4) for the last section.

Please also indicate *how important the same task is to your own most current online teaching practice* by selecting a number from the scale to the right. If an item is unimportant in your situation, pick a low number from the scale. If it's very important, pick a high number. If it's somewhat

important, pick a number from the middle.

Below are examples of tasks you might complete as the owner of a Chihuahua.

Never	Rarely	Often	Constantly		Extremely Unimportant	Extremely Important
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1. Provide food	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	2. Take to vet	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3. Throw frisbee	<input type="radio"/>	<input type="radio"/>

All dog owners must constantly feed their dogs, and feeding is extremely important. Most owners take their dogs to the vet rarely, but it's still very important to the dog's health. For the last question, the owner of a Chihuahua would probably select *never* and *extremely unimportant* because a Chihuahua's mouth is just too small to hold a frisbee, but a Collie owner might have very different answers :-). Since tasks cover different online course platforms, effective online teachers may have very different answers to the same questions as well as huge discrepancies between how often a task is completed and how important it is.

You may perform some tasks because you are also department chairperson, a course designer, etc. For example, you may review course materials for accuracy and currency as department leader, but **answer these questions only regarding your responsibilities as an online teacher.**

Please begin Part 2 of the survey. Click here.



Part 2. Frequency & Importance of Tasks

Never	Rarely	Often	Constantly		Extremely Unimportant	Extremely Important
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1. Provide feedback for assignments	<input type="radio"/>	<input type="radio"/>

<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	2. Answer questions	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	3. Deliver content (written 'lectures')	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	4. Facilitate collaborative learning	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	5. Facilitate virtual community building	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	6. Facilitate synchronous real time chats	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	7. Facilitate asynchronous discussion board chats	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	8. Facilitate individual student participation	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	9. Foster student connection or motivation	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	10. Focus on creating a specific tone	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	11. Maintain 'teacher presence'	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	12. Guide students' time management	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<div>Never</div> <div>Rarely</div> <div>Often</div> <div>Constantly</div>	13. Demonstrate online etiquette	<div>Extremely Unimportant</div> <div>Extremely Important</div>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	14. Teach online etiquette	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	15. Model written communication skills	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	16. Teach written communication skills	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	17. Evaluate students' participation	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	18. Evaluate students' products	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	19. Evaluate students' progress	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	20. Use objective tests to assess student progress	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	21. Use authentic assessments to evaluate student progress	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	22. Use essays to assess student progress	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	23. Use informal Q & A to assess student progress	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	24. Guide students' independence	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<div>Never</div> <div>Rarely</div> <div>Often</div> <div>Constantly</div>		<div>Extremely Unimportant</div> <div>Extremely Important</div>
<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	25. Guide students' creativity	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	26. Ask questions	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	27. Use explanations	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	28. Use examples	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	29. Guide understanding of concepts	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	30. Stimulate or sustain student engagement	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	31. Foster information use skills	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	32. Foster technology skills	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	33. Use electronic tracking data such as email, web logs, and posts to monitor course progress and effectiveness	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	34. Model use of electronic or written sources	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<div>Never</div> <div>Rarely</div> <div>Often</div> <div>Constantly</div>	35. Teach use of electronic or written sources	<div>Extremely Unimportant</div> <div>Extremely Important</div> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	36. Foster use of electronic or written sources	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	37. Administer assessments in such as way as to assure validity and reliability	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	38. Maintain order & appropriate behavior	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
	39. Adapt	

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	instruction to meet individual needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	40. Adapt instruction based on student performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	41. Create valid, reliable assessments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	42. Develop intervention plans for unsuccessful students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	43. Contact parents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	44. Contact other teachers or school officials	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	45. Provide students with basic software support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	46. Provide students with basic hardware support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	47. Refer students to technology support professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	48. Use word processing software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	49. Use spreadsheet software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				50. Use presentation						

Never Rarely Often Constantly

Extremely Unimportant

Extremely Important

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>				51. Use an Internet browser	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>					
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	52. Use email	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>				53. Use hypermedia resources	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>					
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	54. Inform students of acceptable use policies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>				55. Inform students of the right to privacy with online submissions	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>					
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	56. Use course or learning management systems (such as WebCT or BlackBoard)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Remember: This survey is asking about tasks you perform *only* as part of your online teaching responsibilities.

Never	Rarely	Often	Constantly		Extremely Unimportant	Extremely Important				
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>				57. Review course documents for accuracy & currency	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>					
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	58. Revise course documents to maintain accuracy & currency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
				59. Modify or add content to						

<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	existing online courses	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	60. Incorporate multimedia and visual resources into an online module	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	61. Modify or design assessments	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	62. Create content for new online courses	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	63. Upload new courses to the Internet	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	64. Review course materials for alignment with course objectives or state and/or local standards	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	65. Revise course materials for alignment with course objectives or state and/or local standards	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

Since the course management tasks in this last section are usually performed only once per student if at all, your choices range from *never to always* instead of from *never to constantly*.

Never Rarely Often Always		Extremely Unimportant Extremely Important
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	66. Track student registration	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	67. Assess students' readiness for course content	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	68. Assess students' readiness for delivery method	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	69. Make course materials available to students	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	70. Give students expectations about teacher response time	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	71. Maintain records of communication with students	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	72. Explain course organization	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	73. Provide procedures and grading criteria	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	74. Provide interaction expectations	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	75. Provide behavior expectations	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	76. Provide objectives and learning outcomes	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

I currently (or most recently) teach online classes for

CCPS	PWCS	TOA	V V
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You're almost done! Click Send and then go to Part 3.

Part 3:

Part 3. National Standards

This last section has standards for online teaching published last fall by two different education organizations. **Please rate how important each of these standards is to effective online teaching *in your actual online teaching situation*.** If an item isn't important at all, pick a low number from the scale. If it's very important, pick a high number. If it's somewhat important, pick a number from the middle.

National Standards 1

Online teachers. . .

[illegible]

9. Demonstrate competencies in creating and implementing assessments in online learning environments in ways that assure validity and reliability of instruments and procedures

10. Develop and deliver assessments, projects, and assignments that meet standards-based learning goals and assess learning progress by measuring student achievement of learning goals

11. Demonstrate competencies in using data and findings from assessment and other data sources to modify instructional methods and content and to guide student learning

12. Which of the two sets of standards you just evaluated *better* summarizes what online teachers should know and do?

Standards 1 Standards 2

13. I currently (or most recently) teach online courses for

CCPS	PWCS	TOA	V V
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. What strengths or weaknesses do you see in these two sets of online teaching standards?

15. What specific experiences, qualities, or knowledge do you consider to be most important to success as an online teacher?

16. What else do I need to know to understand what you feel is important

to preparing and supporting online teachers?



Very little research has been done on what effective online teachers do. Your willingness to share your experience demonstrates your commitment to the teaching profession. *Thank you for sharing your expertise.*

Once you select Send, you are finished!

Send

Appendix 5: Email to Schedule Participant Interviews

Dear Online Teacher,

Recently you took part in an online questionnaire about online teaching tasks and standards and indicated that you were willing to be interviewed about your experiences and perceptions as an online teacher. I would like to schedule a time and place for the interview that is convenient to you. The interview should last about an hour. If necessary, we can conduct the interview by telephone or by email.

I am attaching a copy* of the informed consent form. It describes the purpose of the study, what will be required of you, and whether you agree to let me audiotape our conversation. I will also bring a copy for you to sign when we meet for the interview.

Please call (540-226-7737) or email me (rsmithm@gmu.edu) as soon as possible so that we can set up a time and meeting place. Participation is entirely voluntary; please let me know if you have changed your mind.

I look forward to hearing from you!

Robin

**Attach informed consent form #2.*

Appendix 6: Interview Guide

The purpose of the interviews is to discover online teacher's experiences and perceptions about online teaching. Before asking interview questions, the interviewer should get the signed informed consent form and establish rapport with the participant.

1. Before I start asking you questions, are there any questions you'd like to ask me about the study or what I'm doing?
2. How did you happen to become an online teacher?
3. Can you tell me about your online teaching—about your courses, your students, how many years you've been teaching online?
4. What is most fulfilling about online teaching?
5. What is most frustrating about online teaching?
6. Has becoming an online teacher changed your face-to-face teaching? How—positively or negatively? (Compare to stats on Tucker report.)
7. How is your role as teacher different online?
8. How is the role of students different online?
9. How have you had to adjust your persona or teaching style as an online teacher?
10. Are there personal traits that you think help you to be effective as an online teacher?
11. Do you observe any differences in the way you connect and interact with your online and face-to-face students? In what ways?
12. What kinds of misunderstandings or challenging situations arise in online classes?
13. Do your classes use group discussion? If so, how do you keep students involved and focused?
14. What strategies have you tried online that just didn't work?
15. What sort of preparation did you have for being an online teacher—both formal and informal?
16. What experiences have you had as an online student?
17. Does it matter if online teachers have had experience as online students themselves?
18. Are there other experiences that have helped you become effective as an online teacher?
19. What was most helpful in preparing you for online teaching?
20. Should online teachers be required to have some sort of preparation for online teaching? Would you describe it?
21. Should online teachers have a separate license? If so, how should it work?
22. How would you compare your responsibilities as a teacher in online classes and face-to-face classes?
23. Which do you prefer—teaching online or face-to-face? Why?
24. Do you want to continue teaching online courses? Why?
25. What are your responsibilities for course design?
26. What are the most important things for online teachers to know and do?
27. What advice do you have for people considering becoming online teachers?
28. What do administrators need to know about online teaching?
29. Had you heard of the NEA and SREB online teaching standards before the survey? If so, where?
30. What do you think of the NEA and SREB standards for online teaching?

Other questions may emerge from the data, and the interviewer may use the following probes.

1. What else?
2. Would you tell me more about that?
3. What do you mean by ____?
4. I'm not sure I got that straight; would you repeat it?

5. Did I understand you correctly? Did you say ____?
6. Is there anything more you'd like to add to this?
7. Go on. I'm not in a hurry.
8. Can you walk me through it?
9. How did that happen?
10. How did you feel?
11. What made you feel that way?
12. What did you do?

Appendix 7: Two Informed Consent Forms

1. Electronic Informed Consent Form for Survey Questionnaires

Virtual Voices: Online Teachers' Perceptions of Online Teaching Standards and Competencies

Research Procedures: This research is being conducted to assess online teachers' perceptions of the knowledge and skills needed for online teaching. Teachers who agree to participate will answer an online questionnaire, which will take approximately 30 minutes to complete. Later, eight volunteers will also be asked to participate in interviews, which will take 60 to 90 minutes.

Risks: There are no foreseeable risks for participating in this research.

Benefits: There are no benefits to you as a participant other than knowing you have helped to assure that teachers' voices will be included in the research about online teaching.

Confidentiality: The data in this study will be confidential. The data will be stored on George Mason University's servers, and participants' responses will be downloaded into Statistical Package for the Social Sciences (SPSS) software without any identifiers. Neither the survey nor the research includes names or other personal information. Only the researcher will have access to participants' responses. While it is understood that no computer transmission can be perfectly secure, reasonable efforts will be made to protect the confidentiality of your transmission.

Participation: Your participation is voluntary, and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

Contact: This research is being conducted by Robin D. Smith, a doctoral candidate at George Mason University. She may be reached at 703-993-2019 for questions or to report a research-related problem. You may also contact her advisor, Dr. Priscilla Norton of the George Mason University Graduate School of Education, at 703-993-2015. You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research. This research has been reviewed according to George Mason University procedures governing your participation in this research.

Consent: The George Mason University Human Subjects Review Board has waived the requirement for signing the consent form. However, if you would like to sign a consent form before beginning the survey, please contact Dr. Priscilla Norton at 703-993-2015 or pnorton@gmu.edu.

Version date: May 4, 2007

2. Informed Consent Form for Interview Participants as Well as Survey Participants Who Prefer to Sign a Form

Virtual Voices: Online Teachers' Perceptions of Online Teaching Standards and Competencies

Research Procedures: This research is being conducted to assess online teachers' perceptions of the knowledge and skills needed for online teaching. After completing an online questionnaire, teachers who have volunteered and been selected will participate in a personal interview that will take 60 to 90 minutes.

Risks: There are no foreseeable risks for participating in this research.

Benefits: There are no benefits to you as a participant other than knowing you have helped to assure that teachers' voices will be included in the research about online teaching.

Confidentiality: The data in this study will be confidential. The data will be stored on George Mason University's servers, and participants' responses will be downloaded into Statistical Package for the Social Sciences (SPSS) software or MS Word without any identifiers. Neither the survey nor the research includes names or other personal information. Only the researcher will have access to participants' responses. While it is understood that no computer transmission can be perfectly secure, reasonable efforts will be made to protect the confidentiality of your transmission.

Participation: Your participation is voluntary, and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

Contact: This research is being conducted by Robin D. Smith, a doctoral candidate at George Mason University. She may be reached at 703-993-2019 for questions or to report a research-related problem. You may also contact her advisor, Dr. Priscilla Norton of the George Mason University Graduate School of Education, at 703-993-2015. You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research. This research has been reviewed according to George Mason University procedures governing your participation in this research.

Consent: I have read this form and agree to participate in this study.

_____ I agree to the audio taping of my interviews.

_____ I do not agree to the audio taping of my interviews.

Name

Signature

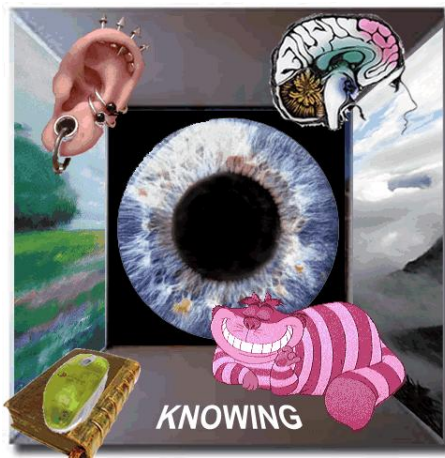
Date

Version date: May 4, 2007

Appendix 8: Demographics of Expert Panel

	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7
HS courses taught	math	social studies	math	None (has taught post secondary only)	science	English	social studies; only post secondary for past 20 years
VA licensure	math & computer science	social studies	math	none	science	English	social studies, (not VA)
National Board Certified	math; AYA				science; AYA		
Classroom experience	> 20	11-20	6-10	0	6-10	6-10	6-10
Online teaching experience	1-5	6-10	1-5	1-5	1-5	1-5	6-10
Education	Mas + 15	Mas + 15	Mas + 15	Mas + 15	Mas + 15	Mas + 15	EdD
Preparation for online teaching	1-6 credits	> 15 hrs	> 15 hrs	> 15 hrs	> 15 hrs	> 15 hrs	0
Experience as online learner in online teaching	1 or more	1 or more + other online courses	1 or more	1 or more	1 or more	1 or more	0
Design experience?	yes	yes	yes	yes	yes	yes	yes
Gender	F	F	F	F	F	F	F
Technical Skill	Explorer	Comfortable user	Comfortable user	Comfortable user	Explorer	Comfortable user	Explorer
Age	41-50	41-50	31-40	41-50	31-40	31-40	51-60

Appendix 9: eCard Thank You and Reminder for Teachers



Dear Online Teacher,

Knowing that you are willing to give up your valuable time to lend your expertise to my study of teachers' perceptions of online teaching means a great deal. If you have already completed the survey, I appreciate it. If you haven't had a chance, you can still help out by going to <http://vhs.gmu.edu/Evals/rsurveyindex.aspx> right now. Thank you!

Robin Smith

Appendix 10: National Online Teaching Standards as Used in Survey

Standards 1: Online teachers. . .

1. Are prepared to use modern information, communication, and learning tools
2. Are motivated self-starters who work well without constant supervision
3. Are student-centered and flexible, while maintaining high standards
4. Are able to promote online dialogue to deepen the learning experience
5. Foster community-building virtually and facilitate collaborative learning
6. Are able to collaborate with students and student support staff/systems to further participation and success in the online course
7. Specify learning objectives and design activities and authentic assessments to measure mastery of the stated objectives
8. Are able to use adaptive technologies to meet individual student needs
9. Possess a sense of humor and are able to 'project' their personality through developing an 'online voice'
10. Exhibit mastery of the online environment and the learning/content management system to be used
11. Are effective in written communication
12. Have completed professional development specifically geared to teaching online. (NEA, 2006)

Standards 2: Online teachers. . .

1. Are effective in written communications
2. Have completed professional development specifically geared to teaching online
3. Have the prerequisite technology skills to teach online
4. Plan, design, and incorporate strategies to encourage active learning, interaction, participation, and collaboration in the online environment
5. Provide online leadership in a manner that promotes student success through regular feedback, prompt response, and clear expectations
6. Model, guide, and encourage legal, ethical, safe, and healthy behavior related to technology use
7. Have experienced online learning from the perspective of a student
8. Understand and are responsive to students with special needs
9. Demonstrate competencies in creating and implementing assessments in online learning environments in ways that assure validity and reliability of instruments and procedures
10. Develop and deliver assessments, projects, and assignments that meet standards-based learning goals and assess learning progress by measuring student achievement of learning goals
11. Demonstrate competencies in using data and findings from assessment and other data sources to modify instructional methods and content and to guide student learning. (SREB, 2006)

Appendix 11: Complete Survey Results Related to Research Questions 1& 2

Table 4.2B

<i>Importance of National Standards 1 (NEA)</i>										
	School 1 <i>n</i> = 5		School 2 <i>n</i> = 9		School 3 <i>n</i> = 22		School 4 <i>n</i> = 7		Total <i>n</i> = 43	
Task	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1	5.40	.89	5.22	1.64	5.50	.74	5.71	.49	5.47	.94
2	6.00	.00	5.33	1.66	5.69	.48	5.71	.76	5.64	.86
3	5.80	.45	5.44	1.67	5.77	.43	5.57	.53	5.67	.83
4	5.20	1.10	5.44	1.67	5.82	.39	5.71	.49	5.62	.89
5	4.00	1.41	4.89	1.69	4.32	1.46	5.14	.69	4.49	1.44
6	5.00	1.73	5.11	1.62	4.77	1.19	5.86	.38	5.04	1.26
7	5.00	1.73	4.89	1.62	5.14	.99	5.43	.79	5.13	1.16
8	4.60	1.95	5.22	1.64	4.73	1.32	5.57	.53	4.98	1.36
9	5.20	1.30	5.22	.97	5.68	.99	5.86	.38	5.44	1.16
10	5.60	.89	4.89	1.54	5.64	.58	5.57	.53	5.44	.89
11	5.80	.45	5.00	1.58	5.68	.65	6.00	.00	5.60	.89
12	2.80	1.64	4.78	1.48	5.41	.96	5.29	.95	4.89	1.43
Total	5.03		5.12		5.34		5.62		5.28	

Table 4.3B

<i>Importance of National Standards 2 (SREB)</i>										
	School 1 <i>n</i> = 5		School 2 <i>n</i> = 9		School 3 <i>n</i> = 22		School 4 <i>n</i> = 7		Total <i>n</i> = 43	
Task	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1	5.80	.45	5.11	1.62	5.68	.65	6.00	.00	5.62	.89
2	2.80	1.64	4.56	1.42	5.18	1.18	4.71	1.50	4.73	1.47
3	5.60	.89	4.78	1.39	5.55	.67	5.43	.79	5.36	.91
4	4.20	1.30	4.89	1.54	4.90	1.15	5.71	.76	4.91	1.24
5	5.80	.45	5.11	1.62	5.86	.35	5.86	.38	5.69	.82
6	6.00	.00	4.89	1.62	5.73	.55	5.71	.76	5.58	.92
7	3.40	1.95	4.89	1.69	4.95	1.05	5.29	.76	4.78	1.40
8	4.40	2.19	5.22	1.64	5.32	1.17	5.71	.76	5.27	1.34
9	5.40	.89	4.78	1.56	4.68	1.36	5.57	.79	4.96	1.28
10	5.00	1.73	4.89	1.54	4.86	1.25	5.71	.76	4.98	1.31
11	4.00	1.58	4.44	1.51	4.63	1.26	5.57	.79	4.62	1.32
Total	4.76		4.87		5.21		5.57		5.14	

Table 4.6B

<i>Frequency of Written Communication Tasks</i>										
	School 1 <i>n</i> = 7		School 2 <i>n</i> = 11		School 3 <i>n</i> = 20		School 4 <i>n</i> = 7		Total <i>n</i> = 45	
Task	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1	3.29	.76	3.55	.52	3.90	.31	3.71	.49	3.69	.51
2	4.00	.00	3.64	.67	3.60	.50	3.86	.38	3.71	.51
3	1.86	.69	2.91	.83	2.25	.44	3.14	.69	2.49	.76
4	1.71	.76	2.09	.71	1.90	.64	3.00	.82	2.09	.79
5	1.71	.76	2.45	1.04	2.15	.87	3.42	.53	2.36	.98
6	1.57	.79	2.73	.65	2.35	.67	3.14	.69	2.44	.81
7	1.71	1.11	3.18	.87	1.60	.82	3.29	.76	2.27	1.16
8	3.00	1.00	3.64	.50	3.85	.37	3.43	.53	3.60	.62
9	3.57	.53	3.45	.52	3.70	.47	3.43	.53	3.58	.50
10	3.71	.49	3.64	.50	3.50	.61	3.71	.49	3.60	.54
11	3.71	.49	3.91	.30	3.32	.75	4.00	.00	3.56	.81
13	4.00	.00	3.80	.42	3.65	.59	3.86	.38	3.77	.48
14	3.29	.49	2.60	1.07	2.55	.83	3.29	.76	2.80	.88
15	4.00	.00	3.90	.32	3.85	.37	3.57	.53	3.84	.37
16	3.00	.82	2.60	.97	2.55	.69	3.29	.49	2.75	.78
Total	2.76		3.00		2.80		3.26		2.91	

Complete Table 4.7 Data: Written Communication Task Frequency (45 Respondents)				
Task	Never	Rarely	Often	Constantly
1 Provide feedback	0.0	2.2% *	26.7%	71.1%
2 Answer questions	0.0	2.2% *	24.4%	73.3%
3 Deliver content, 'written lecture'	4.4%	53.3%	31.1%	11.1%
4 Facilitate collaboration	22.2%	51.1%	22.2%	4.4%
5 Facilitate virtual community	20.0%	40.0%	24.4%	15.6%
6 Facilitate synchronous chats	11.1%	42.2%	37.8%	8.9%
7 Facilitate asynchronous chats	37.8%	15.6%	28.9%	17.8%
8 Facilitate individual participation	2.2% *	0.0	33.3%	64.4%
9 Foster connection/motivation	0.0	0.0	42.2%	57.8%
10 Create specific tone	0.0	2.2% *	35.6%	62.2%
11 Maintain teacher presence	0.0	6.8%	22.7%	70.5%
13 Demonstrate netiquette	0.0	2.3%	18.2%	79.5%
14 Teach netiquette	4.5%	36.4%	34.1%	25.0%
15 Model communication skills	0.0	0.0	15.9%	84.1%
16 Teach communication skills	2.3% *	38.6%	4.09%	18.2%
*This represents a response from only 1 participant.				

Table 4.8B

<i>Frequency of Pedagogy Tasks</i>										
Task	School 1 <i>n</i> = 7		School 2 <i>n</i> = 11		School 3 <i>n</i> = 20		School 4 <i>n</i> = 7		Total <i>n</i> = 45	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
12	3.71	.49	3.09	.54	3.20	.62	3.14	.69	3.24	.68
17	3.43	.79	3.67	.50	3.30	.73	3.71	.49	3.47	.89
18	4.00	.00	3.90	.32	3.85	.37	3.86	.38	3.89	.32
19	3.86	.38	3.70	.48	3.75	.44	4.00	.00	3.80	.41
20	3.86	.38	3.10	.74	2.53	.90	3.00	.58	2.95	.97
21	3.14	.69	3.30	.67	3.45	.69	3.14	.90	3.32	.71
22	3.14	.71	2.50	.85	1.95	.78	3.00	.82	2.44	1.02
23	2.57	.98	2.80	.79	3.10	.55	3.14	1.07	2.95	.78

24	3.43	.79	2.90	.57	2.55	.60	3.00	.82	3.23	.68
25	2.43	.98	3.09	.83	3.50	.51	2.86	.90	2.71	.79
26	3.33	.82	3.18	.75	3.40	.50	3.43	.53	3.39	.80
27	3.57	.53	3.00	.47	3.20	.41	3.57	.53	3.36	.73
28	3.29	.95	3.27	.47	3.55	.60	3.57	.53	3.29	.55
29	3.42	.53	3.20	.42	3.30	.57	3.57	.53	3.45	.75
30	3.00	.82	3.10	.32	2.80	.62	3.43	.53	3.23	.74
31	2.71	1.11	2.60	.52	2.85	.75	3.29	.49	2.82	.69
32	3.00	1.15	3.40	.52	3.05	.76	3.86	.38	2.93	.82
33	3.86	.38	2.70	.48	2.35	.59	3.71	.49	3.64	.65
34	3.00	1.15	2.60	.70	2.90	.64	2.86	.90	3.07	.79
35	2.57	1.13	2.78	.44	3.21	.53	3.29	.76	2.52	.76
36	2.86	1.07	3.30	.48	3.10	.97	3.00	.82	2.93	.82
37	3.14	1.07	3.00	.94	3.25	.64	3.19	.90	3.19	.81
38	3.43	.98	3.80	.42	3.47	.77	3.29	.76	3.14	.93
39	2.14	.90	3.30	.67	2.50	1.00	3.29	.49	3.20	.82
40	2.43	.98	3.00	.67	3.40	.60	3.00	1.00	3.23	.94
41	2.71	1.38	3.20	.63	3.60	.82	3.43	.53	2.84	.99
42	3.14	.90	3.30	.67	2.84	.69	3.29	.95	3.07	.89
43	3.71	.49	3.40	.70	2.65	.75	3.29	.76	3.09	.80
44	3.57	.53	2.60	.84	2.30	.86	3.29	.76	2.73	.92
Total	3.19		3.13		3.07		3.33		3.14	

Complete Table 4.9 Data: Pedagogy Task Frequency (45 Respondents)				
Task	Never	Rarely	Often	Constantly
12 Guide student time management	0.0	8.9%	57.8%	33.3%
17 Evaluate student participation	0.0	9.3%	34.9%	55.8%
18 Evaluate student products	0.0	0.0	11.4%	88.6%
19 Evaluate student progress	0.0	0.0	20.5%	79.5%
20 Use objective assessments	4.7%	25.6%	39.5%	30.2%
21 Use authentic assessments	0.0	13.6%	40.9%	45.5%
22 Use essay assessments	18.6%	32.6%	34.9%	14.0%
23 Use informal Q & A assessments	4.4%	18.2%	54.5%	22.7%
24 Guide student independence	0.0	13.6%	50.0%	36.4%
25 Guide student creativity	2.2% *	42.2%	37.8%	17.8%
26 Ask questions	0.0	6.6%	47.7%	45.5%
27 Use explanations	0.0	2.3% *	59.1%	38.6%
28 Use examples	0.0	4.4%	62.2%	33.3%
29 Guide conceptual understanding	0.0	2.3%	50.0%	47.7%
30 Stimulate student engagement	0.0	6.8%	63.6%	29.5%
31 Foster information use skills	2.3% *	27.3%	56.8%	13.6%
32 Foster technology skills	2.3% *	29.5%	40.9%	27.3%
33 Use elec. tracking to assess course	2.3% *	2.3% *	25.0%	70.5%
34 Model use of resources	2.3% *	20.5%	45.5%	31.8%
35 Teach use of resources	4.5%	50.0%	34.1%	11.4%
36 Foster use of resources	2.3% *	20.9%	58.1%	18.6%
37 Administer valid, reliable assess.	2.3% *	7.0%	60.5%	30.2%
38 Maintain order & behavior	0.0	36.4%	13.6%	50.0%
39 Adapt to meet individual needs	2.3% *	18.2%	36.4%	43.2%
40 Adapt based on student performance	2.3% *	16.3%	37.2%	44.2%
41 Create valid, reliable assessments	13.6%	15.9%	43.2%	27.3%
42 Develop intervention plans	0.0	25.6%	41.9%	32.6%
43 Contact parents	0.0	27.3%	36.4%	36.4%
44 Contact other school personnel	6.8%	38.6%	29.5%	25.0%
*This represents a response from only 1 participant.				

Table 4.10B

<i>Frequency of Technology Use Tasks</i>										
	School 1 <i>n</i> = 7		School 2 <i>n</i> = 10		School 3 <i>n</i> = 20		School 4 <i>n</i> = 7		Total <i>n</i> = 44	
Task	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
45	2.57	.53	2.70	.95	2.30	.80	2.86	1.21	2.52	.88
46	2.14	.90	2.20	.92	1.53	.61	2.14	1.07	1.88	.85
47	2.29	.76	2.10	.57	1.95	.69	2.86	.69	2.18	.72
48	4.00	.00	3.70	.48	3.80	.52	4.00	.00	3.84	.43
49	2.71	1.11	2.90	1.10	2.80	1.06	3.00	.82	2.84	1.01
50	1.86	1.21	3.60	.52	3.10	.72	3.71	.49	3.11	.95
51	3.86	.38	3.70	.48	3.75	.64	3.43	1.51	3.79	.51
52	4.00	.00	4.00	.00	4.00	.00	4.00	.00	4.00	.00
53	2.00	1.15	3.40	1.26	2.80	.77	3.00	1.41	2.91	1.04
54	3.57	.79	2.90	1.52	2.05	.76	3.00	.82	2.64	1.12
55	3.00	1.29	2.00	1.05	1.89	.74	2.86	.90	2.26	1.03
56	2.00	1.41	3.70	.95	1.42	.61	3.43	.79	2.37	1.33
Total	2.83		3.08		2.62		3.19		2.86	

Complete Table 4.11 Data: Technology Use Task Frequency (44 Respondents)				
Task	Never	Rarely	Often	Constantly
45 Give software support	6.8%	52.3%	22.7%	18.2%
46 Give hardware support	37.2%	41.9%	16.3%	4.7%
47 Refer to technology experts	13.6%	59.1%	22.7%	4.5%
48 Use word processing	0.0	2.3% *	11.4%	86.4%
49 Use spreadsheets	9.1%	31.8%	25.0%	34.1%
50 Use presentation software	9.1%	11.4%	38.6%	40.9%

51 Use Internet browser	0.0	4.7%	11.6%	83.7%
52 Use email	0.0	0.0	0.0	100.0%
53 Use hypermedia resources	11.6%	16.3%	46.5%	23.3
54 Inform students of safety & ethics	13.6%	38.6%	22.7%	22.7%
55 Inform students of right to privacy	23.3%	46.5%	11.6%	18.6%
56 Use CMS or LMS	39.5	18.6	7	34.9
*This represents a response from only 1 participant.				

Table 4.12B

<i>Frequency of Course Design Tasks</i>										
	School 1 <i>n</i> = 7		School 2 <i>n</i> = 10		School 3 <i>n</i> = 20		School 4 <i>n</i> = 7		Total <i>n</i> = 44	
Task	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
57	3.43	.53	3.40	.70	3.10	.79	3.57	.53	3.30	.70
58	2.83	.75	3.30	.48	2.60	1.14	3.43	.79	2.93	.96
59	2.17	.98	3.56	.53	2.26	1.00	3.43	.79	2.73	1.05
60	1.83	.98	3.10	.88	2.42	.90	3.71	.49	2.71	1.02
61	2.17	1.17	3.20	.63	2.25	.91	3.43	.53	2.65	.97
62	1.83	.75	2.70	1.16	1.45	.83	3.43	.79	2.12	1.16
63	1.00	.00	2.40	.97	1.35	.81	2.29	1.11	1.70	.99
64	3.00	1.10	3.40	.70	2.05	.94	3.57	.53	2.74	1.07
65	2.17	.98	3.30	.82	1.90	1.02	3.43	.53	2.51	1.12
Total	2.27		3.15		2.15		3.37		2.60	

Complete Table 4.13 Data:				
Course Design Task Frequency with School 3 (44 Respondents)				
Task	Never	Rarely	Often	Constantly
57 Review documents for accuracy	0.0%	13.6%	43.2%	43.2%
58 Revise documents for accuracy	9.3%	20.9%	37.2%	32.6%
59 Modify or add content	17.1%	19.5%	36.6%	226.8%
60 Incorporate multimedia & visuals	14.3%	26.2%	33.3%	26.2%
61 Modify or design assessments	14.0%	27.9%	37.2%	20.9%
62 Create content for new course	41.9%	23.3%	1%	18.6%
63 Upload new course to the Internet	60.5%	16.3%	16.3%	7.0%
64 Review course for alignment	16.3%	23.3%	30.2%	30.2%
65 Revise course for alignment	25.6%	20.9%	30.2%	23.3%
Course Design Task Frequency without School 3 (24 Respondents)				
Task	Never	Rarely	Often	Constantly
57 Review documents for accuracy	0.0	4.2%	45.8%	50.0%
58 Revise documents for accuracy	0.0	13.0%	52.2%	34.8%
59 Modify or add content	9.1%	9.1%	40.9%	40.9%
60 Incorporate multimedia & visuals	13.03%	17.42%	30.4%	39.1%
61 Modify or design assessments	8.7%	13.0%	47.8%	30.4%
62 Create content for new course	17.4%	26.1%	26.1%	30.4%
63 Upload new course to the Internet	43.5%	21.7%	26.1%	8.7%
64 Review course for alignment	4.3%	4.3%	43.5%	47.8%
65 Revise course for alignment	8.9%	13.0%	43.5%	34.8%

Table 4.14B

Frequency of Course Management Tasks

	School 1 <i>n</i> = 7		School 2 <i>n</i> = 10		School 3 <i>n</i> = 20		School 4 <i>n</i> = 7		Total <i>n</i> = 44	
Task	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
66	3.17	1.17	2.60	.84	1.85	1.31	2.14	.69	2.26	1.21
67	1.50	.55	2.80	.92	2.25	1.02	2.29	1.25	2.28	1.08
68	1.33	.52	2.50	.71	2.30	1.03	2.43	1.13	2.23	1.02
69	3.17	1.33	3.70	.48	2.85	1.27	3.43	1.13	3.19	1.22
70	4.00	.00	3.70	.48	3.55	.69	3.86	.38	3.70	.55

71	4.00	.00	3.80	.63	2.95	.22	3.71	.49	3.89	.39
72	4.00	.00	3.70	.67	3.55	.69	3.71	.49	3.68	.60
73	4.00	.00	3.70	.48	3.75	.55	3.71	.49	3.77	.48
74	4.00	.00	3.70	.48	3.70	.47	3.71	.49	3.75	.44
75	3.17	.98	3.50	.85	3.25	.79	3.57	.53	3.35	.92
76	3.67	.82	3.78	.44	3.55	.69	3.71	.49	3.64	.98
Total	3.27		3.41		3.05		3.30		3.25	

Complete Table 4.15 Data: Course Management Task Frequency (44 Respondents)				
Task	Never	Rarely	Often	Always
66 Track registration	37.2%	20.9%	20.9%	20.9%
67 Assess readiness for content	27.9%	30.2%	27.9%	14.0%
68 Assess readiness for delivery	25.6%	37.2%	25.6%	11.6%
69 Make materials available	16.3%	7.0%	18.6%	58.1%
70 State teacher response times	0.0	4.5%	20.5%	75.0%
71 Maintain record of communication	0.0	2.3%	6.8%	90.9%
72 Explain course organization	0.0	6.8%	18.2%	75.0%
73 Give procedures & grade criteria	0.0	2.3%*	18.2%	79.5%
74 Give interaction expectations	0.0	0.0	25.0%	75.0%
75 Give behavior expectations	0.0	18.6%	27.9%	53.5%
76 Give objectives & outcomes	0.0	7.1%	21.4%	71.4%
*This represents a response from only 1 participant.				

Appendix 12: Complete Survey Results Related to Research Questions 3 & 4

Table 4.17B

<i>Importance of Written Communication Tasks</i>										
	School 1 <i>n</i> = 7		School 2 <i>n</i> = 11		School 3 <i>n</i> = 20		School 4 <i>n</i> = 7		Total <i>n</i> = 45	
Item	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1	5.29	1.50	5.82	.40	5.80	.41	5.89	.38	5.73	.69
2	5.29	1.89	5.91	.30	5.95	.22	6.00	.00	5.84	.77
3	3.57	1.51	4.45	1.29	4.21	.92	4.86	.90	4.27	1.30
4	2.71	1.50	3.50	1.43	3.25	1.21	4.57	1.62	3.43	1.51
5	2.86	1.68	1.31	1.51	3.20	1.24	5.29	.95	3.64	1.52
6	2.86	1.68	4.18	1.54	4.10	1.48	4.86	1.21	4.04	1.55
7	3.29	2.06	4.73	1.62	2.70	1.38	5.29	.76	3.69	1.80
8	4.86	1.86	5.45	.82	5.80	.41	5.57	.79	5.53	.94
9	5.71	.49	5.55	.69	5.75	.44	5.14	.69	5.60	.58
10	5.71	.49	5.45	.82	5.45	.69	5.57	.79	5.51	.69
11	5.71	.49	5.73	.47	5.10	.97	5.83	.41	5.46	1.13
13	5.86	.38	5.40	.97	5.35	.67	5.57	.79	5.48	.73
14	5.57	.53	4.50	1.43	4.45	1.05	5.43	.79	4.80	1.13
15	6.00	.00	5.50	.97	5.70	.47	5.43	.79	5.66	.64
16	5.57	.53	4.40	1.35	4.60	1.05	5.29	.76	4.82	1.08
Total	4.43		4.49		4.46		5.04		4.59	

Table 4.18B

<i>Importance of Pedagogy Tasks</i>										
	School 1 <i>n</i> = 7		School 2 <i>n</i> = 11		School 3 <i>n</i> = 20		School 4 <i>n</i> = 7		Total <i>n</i> = 45	
Item	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1b	5.57	.79	4.64	1.29	5.55	.60	5.28	.49	5.29	.85
17	5.29	.95	5.30	1.06	5.00	1.03	5.71	.49	5.23	.96
18	5.86	.38	5.90	.32	5.75	.55	5.86	.38	5.82	.45
19	5.86	.38	5.50	.97	5.69	.48	5.86	.38	5.70	1.04
20	5.29	.76	4.90	1.60	4.37	1.30	5.29	.76	4.80	1.44
21	5.29	.49	5.30	1.06	5.15	.81	4.86	1.21	5.16	.89
22	5.43	.53	4.30	1.34	3.40	1.43	5.14	.90	4.20	1.46
23	4.57	1.72	4.00	1.33	5.15	.75	4.71	1.25	4.73	1.21
24	5.57	.79	4.70	.95	5.40	.75	5.00	.82	5.20	.85
25	3.86	1.35	4.50	1.43	4.30	1.08	4.23	1.27	4.30	1.36
26	5.00	1.15	4.50	1.18	5.50	.69	5.57	.79	5.20	1.24
27	5.43	.79	4.70	.95	5.60	.50	5.86	.38	5.41	1.10
28	5.14	1.07	5.10	.99	5.50	.51	5.86	.38	5.41	1.10
29	5.43	.79	5.00	.87	5.75	.44	5.71	.49	5.53	1.32
30	4.57	1.81	5.30	.82	5.60	.50	5.57	.53	5.36	.94
31	4.29	2.06	4.50	1.08	5.05	1.05	5.33	.82	4.84	1.44
32	5.43	.79	4.80	1.14	5.00	.92	5.14	.90	5.05	.94
33	5.71	.49	4.90	1.10	5.35	1.14	5.29	1.11	5.30	1.05

34	5.00	1.41	4.00	1.12	4.80	1.11	5.43	.79	4.77	1.36
35	4.71	1.38	4.30	1.16	4.45	.89	5.14	.90	4.57	1.04
36	4.71	1.38	4.30	1.06	4.85	.99	5.29	.76	4.77	1.05
37	5.00	1.41	5.00	.47	5.47	.61	5.57	.53	5.30	1.10
38	5.42	1.13	4.50	1.65	4.90	1.07	5.57	.53	5.00	1.20
39	5.00	1.00	5.80	.42	5.40	.94	5.71	.49	5.48	.82
40	5.14	.90	5.20	.92	5.35	.75	5.86	.38	5.36	.78
41	5.86	.38	5.50	.71	4.65	1.35	5.57	.53	5.18	1.11
42	5.71	.76	5.50	.71	5.47	.77	5.57	.53	5.53	1.09
43	6.00	.00	5.40	.84	5.05	1.13	5.57	.53	5.37	1.22
44	6.00	.00	4.70	1.16	4.40	1.50	5.57	.53	4.91	1.31
Total	5.25		4.90		5.10		5.42		5.13	

Table 4.19B

<i>Importance of Technology Use Tasks</i>										
	School 1 <i>n</i> = 7		School 2 <i>n</i> = 10		School 3 <i>n</i> = 20		School 4 <i>n</i> = 7		Total <i>n</i> = 44	
Item	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
45	5.43	.79	3.60	1.51	4.30	1.45	5.14	1.21	4.45	1.45
46	4.00	2.16	3.40	1.35	3.21	1.23	4.43	1.51	3.59	1.50
47	4.57	1.27	3.00	1.25	3.70	1.26	5.43	.79	3.95	1.41
48	6.00	.00	5.30	.67	5.65	.59	6.00	.00	5.68	.56
49	5.00	1.15	4.30	1.77	4.35	1.50	5.14	1.07	4.57	1.45

50	3.86	1.95	5.30	.82	4.84	.76	5.67	.52	4.90	1.52
51	5.57	.79	5.70	.67	5.70	.66	5.86	.38	5.70	.63
52	6.00	.00	5.80	.42	5.90	.31	5.71	.49	5.86	.35
53	3.86	2.12	4.50	1.58	4.60	1.23	5.17	.75	4.53	1.58
54	5.29	.95	4.30	1.89	4.70	1.59	5.14	.90	4.77	1.49
55	4.86	1.07	4.10	1.66	4.60	1.27	5.14	.90	4.61	1.30
56	4.00	2.08	5.20	1.75	3.10	1.33	5.71	.49	4.14	1.80
Total	4.87		4.54		4.55		5.38		4.73	

Table 4.20B

<i>Importance of Course Design Tasks</i>										
	School 1 <i>n</i> = 7		School 2 <i>n</i> = 10		School 3 <i>n</i> = 20		School 4 <i>n</i> = 7		Total <i>n</i> = 44	
Item	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
57	5.86	.38	5.50	.71	5.25	.91	5.43	.79	5.43	.79
58	5.67	.52	5.40	.70	5.25	1.02	5.71	.49	5.42	.82
59	5.17	.75	5.10	.74	4.40	1.10	5.57	.53	4.86	.99
60	3.83	1.94	5.00	1.05	4.20	1.28	5.86	.38	4.60	1.38
61	5.00	1.55	5.30	.67	4.45	1.00	5.86	.38	4.95	1.07
62	3.60	1.95	4.60	.97	3.53	1.54	5.14	1.46	4.07	1.56
63	2.20	2.17	4.11	1.17	3.11	1.70	4.43	1.40	3.45	1.71
64	5.83	.41	5.50	.55	4.65	1.63	5.71	.49	5.15	1.31
65	5.33	.82	5.20	1.03	4.55	1.61	5.57	.53	4.98	1.30
Total	4.72		5.08		4.38		5.48		4.77	

Table 4.21B

<i>Importance of Course Management Tasks</i>										
	School 1 <i>n</i> = 7		School 2 <i>n</i> = 10		School 3 <i>n</i> = 19		School 4 <i>n</i> = 7		Total <i>n</i> = 43	
Item	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
66	5.00	1.67	3.70	1.83	3.78	1.86	4.14	.90	4.00	1.70
67	5.00	1.00	3.70	1.34	4.94	1.43	5.43	.54	4.73	1.36
68	5.00	1.00	3.90	1.29	4.94	1.47	5.43	.53	4.78	1.32
69	5.67	.52	5.20	1.14	5.06	1.47	5.57	.53	5.27	1.16
70	5.86	.38	5.50	.71	5.74	.56	5.57	.53	5.67	.57
71	6.00	.00	5.80	.63	5.84	.37	5.71	.49	5.84	.43
72	6.00	.00	5.60	.70	5.63	.60	5.71	.49	5.70	.56
73	6.00	.00	5.60	.70	5.74	.45	5.71	.49	5.74	.49
74	5.86	.38	5.50	.85	5.74	.56	5.57	.53	5.67	.61
75	5.50	.84	5.20	1.23	5.16	1.07	5.71	.53	5.29	.99
76	5.67	.82	5.50	.85	5.47	.84	5.71	.49	5.55	.77
Total	5.60		5.01		5.28		5.48		5.29	

References

References

- Albion, P., & Maddux, C. (2007). Editorial: Networked knowledge: Challenges for teacher education. *Journal of Technology and Teacher Education* 15(3), 303-310.
- Alreck, P. J., & Settle, R. B. (1995). *The survey research handbook* (2nd ed.). New York: Irwin, McGraw-Hill.
- American Federation of Teachers Higher Education Program and Policy Council (2000, May). *Distance education: Guidelines for good practice*. Retrieved June 3, 2006, from http://www.aft.org/pubs-reports/higher_ed/distance.pdf
- Appel, J. (2006, September 29). New standards aid in virtual instruction. *eSchool News online*. Retrieved October 6, 2006, from <http://www.eschoolnews.com/news/PFshowstory.cfm?ArticleID=6601>
- Bales, B. L. (2007). Teacher education reform in the United States and the theoretical constructs of stakeholder mediation. *International Journal of Education Policy & Leadership*, 2(6), 395-407. Retrieved August 26, 2007, from <http://www.ijepl.org>
- Barnhart, C. L. (Ed.). (1970). *The American college dictionary*. New York: Random House.
- Barton, D. (2000). Researching literacy practices. In D. Barton, M. Hamilton, & R. Ivanic (Eds.), *Situated literacies*. (pp. 167-179). New York: Routledge.
- Bauer, M. (2007, July 30). Minnesota education: Online high schools are niche some kids need. *TwinCities.com-Pioneer Press*. Retrieved July 30, 2007, from http://www.twincities.com/portlet/article/html/fragments/print_article.jsp?articleId=64962
- Blomeyer, R. L. (2006, Spring). *Professional development for effective teaching and online learning*. Virtual School Report published by Connections Academy. Retrieved October 5, 2006, from <http://www.connectionsacademy.com/pdfs/VirtualNewsSpring2006.pdf>
- Bradburn, N. M., & Sudman, S. (1988). *Polls & surveys: Understanding what they tell us*. San Francisco: Jossey-Bass Publishers.

- Bradburn, N. M., Sudman, S., & Wasnick, B. (2004). *Asking questions: The definitive guide to questionnaire design—for market research, political polls, and social and health questionnaires* (Rev. ed.). San Francisco: Jossey-Bass.
- Briggs, S. (2005). Changing roles and competencies of academics. *Active Learning in Higher Education*, 6(256). Retrieved December 10, 2007, from <http://alh.sagepub.com/cgi/content/abstract/6/3/256>
- Brown, S. J., Collins, A., & Duguid, P. (1996). Situated cognition and the culture of learning. In H. McLellan (Ed.), *Situated learning perspectives* (pp. 19-44). Englewood Cliffs, NJ: Educational Technology Publications.
- Brown, S. J., Duguid, P. (1996). Stolen knowledge. In H. McLellan (Ed.), *Situated learning perspectives* (pp. 47-56). Englewood Cliffs, NJ: Educational Technology Publications.
- Committee on Science, Engineering, and Public Policy. (2007). *Rising above the gathering storm: Energizing and employing America for a brighter economic future*. Washington, DC.: The National Academies Press.
- Coppola, N. W., Hiltz, S. R., & Rotter, N. (2001). Becoming a virtual professor: Pedagogical roles and ALN. *Proceedings of the 34th Hawaii International Conference on System Sciences*.
- Cresswell, J. W. (2002). *Research Design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Cuban, L. (1986). *Teachers and machines: The classroom use of technology since 1920*. New York: Teachers College Press.
- Darabi, A. A., Sikorski, E. G., & Harvey, R. B. (2006, May). Validated competencies for distance teaching. *Distance Education*, 27, 105-122.
- Darling-Hammond, L., & Bransford, J. (Eds.) (2005). Introduction. *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 1-39). San Francisco: Jossey-Bass.
- Darling-Hammond, et al. (2005). How teachers learn and develop. In L. Darling-Hammond, & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 358-389). San Francisco: Jossey-Bass.

- Davis, M. R. (2007, June 20). How to ensure online courses are higher-caliber. *Education Week Digital Directions*. Retrieved August 30, 2007, from http://edweek.org/ew/articles/2007/06/20/01sr_elearning.h01.html
- Davis, N. E., & Roblyer, M. D. (2005, Summer). Preparing teachers for the 'schools that technology built': Evaluation of a program to train teachers for virtual schooling. *Journal of Research on Technology in Education*, 37(4), 399-409.
- Davis, N., & Rose, R. (2007, November). *Professional development for virtual schooling and online learning*. NACOL Research Committee Issues Brief. Retrieved November 11, 2007, from http://www.nacol.org/docs/NACOL_PDforVSandOlnLrng.pdf
- Dennen, V. P., Darabi, A. A., & Smith, L. J. (2007, May). Instructor-learner interaction in online courses: The relative perceived importance of particular instructor actions on performance and satisfaction. *Distance Education*, 28, 65-79.
- Devaney, L. (2007, August 29). Tech-support costs on the rise: Faced with budget constraints, many schools cut spending on classroom applications. *eSchool News online*. Retrieved August 30, 2007, from <http://www.eschoolnews.com/news/PFshowstory.cfm?ArticleID=7325>
- Eisen, P., Jasinowski, J. J., & Kleinert, R. (2005). *2005 skills gap report: A survey of the American manufacturing workforce*. Retrieved March 10, 2008, from http://www.nam.org/s_nam/bin.asp?CID=202426&DID=235731&DOC=FILE.PDF
- Emerson, R. M., Fretz, R. I., & Shaw, L. L. (1995). *Writing ethnographic field notes*. Chicago: University of Chicago Press.
- Falowo, R. O. (2007). Factors impeding implementation of web-based distance learning. *AACE Journal*, 15(3), 315-338.
- Florida leads growth in virtual schooling: Still the oldest and largest k-12 virtual school, FLVS is a model for online instruction. (2007, July 23). *eSchool News online*. Retrieved August 17, 2007, from <http://www.eschoolnews.com/news/PFshowstory.cfm?ArticleID=7315>
- Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century*. New York: Farrar, Straus, and Giroux.
- Garrison, D. R., & Anderson, T. (2003). *E-learning in the 21st century: A framework for research and practice*. New York: Routledge-Falmer.

- Gates, W. H. (2007, March 7). *Written Testimony of William H. Gates, Chairman, Microsoft Corporation, before the Senate Committee on Health, Education, Labor, and Pensions*. Retrieved March 10, 2008, from http://help.senate.gov/Hearings/2007_03_07/Gates.pdf
- Gaytan, J. (2007, Summer). Visions shaping the future of online education: understanding its historical evolution, implications, and assumptions. *Online Journal of Distance Learning Administration*, 10(2). Retrieved September 3, 2007, from http://www.westga.edu/%7Edistance/ojdl/search_results_id.php?id=426
- Gee, J. P. (2000). The new literacy studies: From 'socially situated' to the work on the social. In D. Barton, M. Hamilton, & R. Ivanic (Eds.), *Situated literacies* (pp. 180-196). New York: Routledge.
- Gilster, P. (1997). *Digital literacy*. New York: John Wiley & Sons.
- Glesne, C. (2006). *Becoming qualitative researchers: An introduction*. New York: Pearson.
- Goodyear, P., Salmon, G., Spector, J. M., Steeples, C., & Tickner, S. (2001). Competences for online teaching: A special report. *Educational Technology, Research and Development*, 49(1).
- Governors craft reform strategy: U. S. governors say education, workplace must change fast to cope with globalization. (2007, February 28). *eSchool News online*. Retrieved March 17, 2007, from <http://www.eschoolnews.com/news/top-news/index.cfm?i=45516&CFID=2098303&CFTOKEN=70199003>
- Grossman, P. (2005). Research on pedagogical approaches in teacher education. In M. Cochran-Smith, & K. M. Zeichner (Eds.), *Studying teacher education: The report of the AERA Panel on Research and Teacher Education* (pp. 157-260). Mahwah, NJ: Lawrence Erlbaum Associates.
- Hammerness, K., Darling-Hammond, L., & Bransford, J. (2005). How teachers learn and develop. In L. Darling-Hammond, & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 358-389). San Francisco: Jossey-Bass.
- Hassell, B. C., & Terrell, M. G. (n.d.). White paper: How can virtual schools be a vibrant part of meeting the choice provision of the *No Child Left Behind Act*? Washington, DC: U. S. Department of Education Secretary's *No Child Left Behind* Leadership Summit.

- Henke, K. G. (2006). *Learning in the 21st century: A national report of online learning*. Retrieved November 11, 2007, from <http://www.tomorrow.org/speakup/learning21Report.html>
- Howley, A., & Howley, C. (2007). *Thinking about schools: New theories and innovative practice*. Mahwah, NJ: Lawrence Erlbaum Associates.
- International Board of Standards for Training, Performance, and Instruction. (2000). *Instructional design competencies*. Retrieved March 14, 2007, from http://ibstpi.org/competencies/instruct_design_competencies_2000.htm
- International Board of Standards for Training, Performance, and Instruction. (2003). *Instructor competencies*. Retrieved March 14, 2007, from http://ibstpi.org/competencies/instructor_competencies.htm
- International Society of Technology in Education. (2002). *National educational technology standards for teachers: Preparing teachers to use technology*. Retrieved February 17, 2007, from http://cnets.iste.org/Teachers/t_book.html
- Jacobson, R. L. (2007, August 13). State-run virtual schools gather steam: New SREB report points to growing interest among government officials in expanding online education. *eSchool News online*. Retrieved August 31, 2007, from <http://www.eschoolnews.com/news/PFshowstory.cfm?ArticleID=7328>
- Judson, E. (2006). How teachers integrate technology and their beliefs about learning: Is there a connection? *Journal of Technology and Teacher Education*, 14(3), 581-597.
- King, J. R., & O'Brien, D. G. (2002). Adolescents' multiliteracies and their teachers' needs to know: Toward a digital détente. In D. E. Alverman (Ed.), *Adolescents and literacies in a digital world* (pp. 40-50). New York: Peter Lang.
- Klein, J. A., Spector, J. M., Grabowski, B., & de la Teja, I. (2004). *Instructor competencies: Standards for face-to-face, online, and blended settings*. Greenwich, CT: Information Age Publishing.
- Krathwohl, D. R. (1998). *Methods of education and social science research: An integrated approach*. Long Grove, IL: Waveland Press.
- Larreamendy-Joerns, J., & Leinhardt, G. (2006, Winter). Going the distance with online education. *Review of Education Research*, 75(4), 567-605.
- Lave, J., & Wenger, E. (1991). *Situated learning*. Cambridge, UK: Cambridge University Press.

- Lowes, S. (2005). *Online teaching and classroom change: The impact of virtual high school on its teachers and their schools*. Retrieved August 12, 2007, from http://www.ilt.columbia.edu/publications/lowes_final.pdf
- Maeroff, G. I. (2003). *A classroom of one: How online learning is changing our schools and colleges*. New York: Palgrave.
- Mann, I. T., Phillips, J. L., & Thompson, E. G. (1979). An examination of methodological issues relevant to the use and interpretation of the semantic differential. *Applied Psychological Measurement*, 3(2), 213-229. Retrieved August 28, 2007, from <http://apm.sagepub.com/cgi/content/abstract/3/2/213>
- Maxwell, J. A. (2005). *Qualitative research design: An interactive approach* (2nd ed.). In *Applied social research methods series: Vol. 41*. Thousand Oaks, CA: Sage Publications.
- McMillan, J. H., & Schumacher, S. (2001). *Research in education* (5th ed.). New York: Longman.
- Mehta, S. (2007, February 18). More students across US logging on to online classrooms: Time restraints, jobs, yen for AP classes all factors. *Boston.com*. Retrieved March 17, 2007, from <http://www.boston.com/news/nation/articles/2007/02/18>
- Michigan first to mandate online learning. (2006, April 3). *eSchool News online*. Retrieved April 3, 2006, from <http://www.eschoolnews.com/news/showstoryts.cfm?Articleid=6223>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Muilenburg, L. Y., & Berge, Z. L. (2005, May). Student barriers to online learning: A factor analytic study. *Distance Education*, 26(1), 29-48.
- National Council on Teacher Quality. (2007). *State teacher policy yearbook: Progress on teacher quality*. Retrieved July 2, 2007, from <http://www.nctq.org/stpy/>
- National Education Association. (2006, November). *Guide to teaching online*. Retrieved November 8, 2006, from <http://www.nea.org/technology/images/onlineteachguide.pdf>
- North American Council for Online Learning. (2007, September). *National standards of quality for online courses*. Retrieved September 15, 2007, from <http://www.nacol.org/nationalstandards/>

- North American Council for Online Learning. (2008, February). *National standards for quality online teaching*. Retrieved February 23, 2008, from <http://www.nacol.org/nationalstandards/NACOL%20Standards%20Quality%20Online%20Teaching.pdf>
- North American Council for Online Learning and the Partnership for 21st Century Skills. (2007, November). *Virtual schools and 21st century skills*. Retrieved November 15, 2007, from <http://www.nacol.org/docs/VSand21stCenturySkillsFINALPaper.pdf>
- Norton, P. (2003). COPLS: An alternative to traditional online course management tools. In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2003* (pp. 465-472). Chesapeake, VA: AACE.
- Online classes take sting out of summer school (2007, July 21). *BostonHerald.com*. Retrieved July 23, 2007, from <http://business.bostonherald.com/technologyNews/view.bg?articleid=1012650>
- Pape, L. (2007, November). Developing effective online teachers. *Keeping pace with k-12 online learning: A review of state-level policy and practice*. Retrieved November 20, 2007, from <http://www.nacol.org/docs/KeepingPace07-color.pdf>
- Partnership for 21st Century Skills. (2004). *Framework for 21st century learning*. Retrieved March 3, 2007, from <http://www.21stcenturyskills.org/documents/Frameworkflyer092806.pdf>
- Partnership for 21st Century Skills. (2007). *Framework for 21st century learning*. Retrieved August 31, 2007, from http://www.21stcenturyskills.org/documents/frameworkflyer_072307.pdf
- Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage Publications.
- The Peak Group. (2002). *Virtual schools across America: Trends in k-12 online education, 2002*. Retrieved January 15, 2007, from <http://www.peakgroup.net/educationoutlook/virtualschools.html>
- Picciano, A. G., A. G., & Seaman, J. (2007, March). *K-12 online learning: A survey of U. S. school district administrators*. Retrieved May 13, 2007, from http://www.sloan-c.org/publications/survey/pdf/K-12_Online_Learning.pdf
- Pink, D. H. (2005). *A whole new mind*. New York: Riverhead Books.

- Postman, N. (1999). *Five things we need to know about technological change*. Retrieved October 29, 2007, from <http://www.mat.upm.es/~jcm/neil-postman--five-things.html>
- Powell, A., & Patrick, S. (2006, November). *An international perspective of k-12 online learning: A summary of the 2006 NACOL International E-Learning Survey*. Retrieved November 20, 2006, from <http://www.nacol.org/docs/InternationalSurveyResultsSummaries.pdf>
- Prensky, M. (2006). *Don't bother me, mom—I'm learning: How computer and video games are preparing your kids for twenty-first century success*. New York: Paragon House.
- Prensky, M. (2005). Listen to the natives. *Educational Leadership: The Best of EL 2005-2006*, 20-23.
- Putnam, R. T., & Borko, H. (2000). What do new views of knowledge and thinking have to say about research on teacher learning? *Educational Researcher*, 29(1), 4-15.
- Rice, K., & Dawley, L. (2007, November). *Going virtual: The status of professional development for K-12 online teachers*. Retrieved November 11, 2007, from <http://edtech.boisestate.edu/goingvirtual/goingvirtual1.pdf>
- Richardson, W. (2006). *Blogs, wikis, podcasts, and other powerful web tools for classrooms*. Thousand Oaks, CA: Corwin Press.
- Robelen, E. W. (2007, June 7). States taking action on virtual schools. *Education Week*. Retrieved June 8, 2007, from <http://www.edweek.org/ew/articles/2007/06/13/41virtual.html>
- Rosenhall, L. (2006, October 5). UC to limit credit for online study. *The Sacramento Bee*. Retrieved October 9, 2006, from <http://www.sacbee.com/101/v-print/story/34138.html>
- Sammons, M. (2003). Exploring the new conception of teaching and learning in distance education. In M. G. Moore & W. G. Anderson (Eds.), *Handbook of distance education* (pp. 387-397). Mahwah, NJ: Lawrence Erlbaum Associates.
- Shafritz, J. M., Ott, J. S., & Jang, Y. S., eds. (2005). Reform through changes in organizational culture. *Classics of organizational theory* (pp. 415-423). Belmont, CA: Wadsworth.

- Smith, R., Clark, T., & Blomeyer, R. L. (2005). *A synthesis of new research on K-12 online learning*. Retrieved January 5, 2007, from <http://www.ncrel.org/tech/synthesis/synthesis.pdf>
- Southern Regional Education Board. (2006a, October). *Online teaching evaluation for state virtual schools*. Retrieved March 15, 2008, from http://www.sreb.org/programs/EdTech/pubs/2006Pubs/06T04_Online_teaching_evaluation_checklist.pdf
- Southern Regional Education Board. (2006b, October). *Standards for quality online teaching*. Retrieved October 7, 2006, from <http://www.sreb.org/programs/EdTech/pubs/PDF/StandardsQualityOnlineTeaching.asp>
- Southern Regional Education Board Educational Technology Cooperative. (2007, August). *Report on state virtual schools*. Retrieved August 31, 2007, from http://www.sreb.org/programs/EdTech/pubs/2007pubs/07T06_Summary_Report_state_virtual.pdf
- Spector, J. M., & de la Teja, I. (2001, December). Competencies for online teaching. *ERIC Digest*. Syracuse, NY: ERIC Clearinghouse on Information & Technology. (ERIC Document Reproduction Service No. ED456841)
- Sprague, D., Maddux, C., Ferdig, R., & Albion, P. (2007). Editorial: Online education: Issues and research questions. *Journal of Technology and Teacher Education*, 15(2), 157-166.
- Stansbury, M. (2007, August 8). P21 issues new guidance on 21st-century skills: Revised framework outlines a new vision for education in today's schools. *eSchool News online*. Retrieved August 13, 2007, from <http://www.eschoolnews.com/news/PFshowstory.cfm?ArticleID=7299>
- Stars Suite*. (2007). Retrieved March 10, 2008, from <http://www.edoptions.com/products/stars/howitworks.html>
- Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications.
- Tapscott, D. (1998). *Growing up digital*. New York: McGraw-Hill.
- Tucker, B. (2007, June). *Laboratories of reform: Virtual high schools and innovation in public education*. Washington, DC: Education Sector.

- Tyack, D., & Cuban, L. (1995). *Tinkering toward utopia: A century of public school reform*. Cambridge, MA: Harvard University Press.
- U. S. Department of Education. (2007). *Connecting students to advanced courses online: Innovations in education*. Washington, DC: ED Pubs. Retrieved December 12, 2007, from <http://www.ed.gov/admins/lead/academic/advanced/coursesonline.pdf>
- U. S. Department of Education. (2005). *Toward a new golden age in American education: How the Internet, the law and today's students are revolutionizing expectations* (National Education Technology Plan 2004). Retrieved October 12, 2006, from <http://www.ed.gov/about/offices/list/os/technology/plan/2004/index.html>
- United States House of Representatives. (2007, May). *To amend the Elementary and Secondary Education Act of 1965, the Higher Education Act of 1965, and the Internal Revenue Code of 1986 to improve recruitment, preparation, distribution, and retention of public elementary and secondary school teachers and principals, and for other purposes. HR 2204*. Retrieved February 23, 2008, from <http://thomas.loc.gov/cgi-bin/bdquery/z?d110:h.r.02204>:
- Virtual High School. *Professional development*. (2007). Retrieved October 3, 2007. <http://www.govhs.org/Pages/ProfDev-Home>
- Virtual school spots filled in Missouri. (2007, June 23). *Jefferson City News Tribune Online Edition*. Retrieved June 26, 2007, from newstribune.com/articles/2007/06/24/news_state/191state12virtual.prt
- Wallace, R. M. (2004, Summer). A framework for understanding teaching with the Internet. *American Educational Research Journal*, 41(2), 447-488. Retrieved December 21, 2007, from http://mutex.gmu.edu:3131/hww/shared/shared_main.jhtml?_requestid=35577
- Watson, J. F. (2007, May). *A national primer on k-12 online learning*. Retrieved May 13, 2007, from http://www.nacol.org/docs/national_report.pdf
- Watson, J., & Ryan, J. (2006, October). *Keeping pace with k-12 online learning: A review of state-level policy and practice*. Retrieved November 24, 2006, from <http://www.nacol.org/docs/Keeping%20Pace%20with%20K-12%20Online%20Learning%202006.pdf>
- Watson, J., & Ryan, J. (2007, November). *Keeping pace with k-12 online learning: A review of state-level policy and practice*. Retrieved November 20, 2007, from <http://www.nacol.org/docs/KeepingPace07-color.pdf>

- Weiss, R. S. (1994). *Learning from strangers: The art and method of qualitative interview studies*. New York: The Free Press.
- Wharton-McDonald, R., Pressley, M. & Hampston, J. M. (1998, November). Literacy instruction in nine first-grade classrooms: Teacher characteristics and student achievement. *The Elementary School Journal* 99(2), 101. *InfoTrac OneFile*. Thomson Gale. George Mason University. Retrieved May 6, 2007, from http://mutex.gmu.edu:2294/itx/infomark.do?&contentSet=IAC-Documents&type=retrieve&tabID=T002&prodId=ITOF&docId=A54851458&source=gale&srcprod=ITOF&userGroupName=viva_gmu&version=1.0
- Will new *NCLB* reflect 21st-century skills? (2007, August 6). *eSchool News online*. Retrieved August 7, 2007, from <http://www.eschoolnews.com/news/PFshowstory.cfm?ArticleID=7296>
- Young, J. (2007, November). Managing online teachers. *Keeping pace with k-12 online learning: A review of state-level policy and practice*. Retrieved November 20, 2007, from <http://www.nacol.org/docs/KeepingPace07-color.pdf>

Curriculum Vitae

Robin Davidson Smith graduated from Buckingham County High School, Buckingham, Virginia, in 1968. She received her Bachelor of Arts from Longwood University in 1976. She was employed as a teacher in Cumberland and Buckingham counties for twenty-seven years, Stafford County for three years, and received her Master of Arts in English Literature from Longwood University in 1990.