An Exploratory Study Comparing Two Modes of Preparation for Online Teaching

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Abstract

Few online high schools report requiring online education for their teachers, and few programs exist to prepare teachers to teach online (Smith, Clark, & Blomeyer, 2005). Professional development for online teachers continues to be a concern, and evaluative research that examines the effectiveness of various types of professional development is needed (Archambault & Crippen, 2009). The purpose of this exploratory study was to compare differences in online teachers' self-reported frequency and confidence in performing online teaching tasks between teachers who had completed a comprehensive preparation program and teachers who participated in a one-day face-to-face workshop. Results found no differences between the groups and challenge conventions related to the nature and role of teacher preparation in online teaching. (Keywords: teacher education, online teaching, professional development, online learning, teacher preparation)

Online learning at the K–12 level grows substantially each year. The issue is no longer whether or not online learning is or should occur, but rather how it is implemented. Watson, Murin, Vashaw, Gemin, and Rapp (2011) reported that, as of late 2011, online and blended learning opportunities exist for at least some students in all 50 U.S. states plus the District of Columbia and that there are now 30 states with full-time, multidistrict schools that enrolled an estimated total of 250,000 students in school year 2010–2011, for an annual increase of 25%. More than one-quarter (27%) of all high school students took at least one online class in 2009, and 21% of middle school students reported taking online classes in 2009 (Nagel, 2010). Yet only 4% of aspiring teachers reported they are learning how to teach online classes in their instructional methods courses (Project Tomorrow & Blackboard K12, 2010), and a persistent percentage of teachers across all years of experience (averaging at 39%) say they have no interest in teaching online (Project Tomorrow, 2011).

This lack of interest in online teaching has resulted in a significant supply-and-demand problem for schools and districts. As stated in the Project Tomorrow (2011) report, "To meet the increased demand for online learning from students and parents, and to fully realize the potential for online learning as a tool to increase student graduation rates, we must address staff capacity issues" (p. 12).

It is likely that most online teachers will come from traditional classrooms. Data from a study of 596 online K–12 teachers suggested that most current online teachers do, in fact, come from traditional classrooms and that face-to-face teaching is a necessary prerequisite for teaching online (Archambault & Crippen, 2009). Archambault and Crippen (2009) concluded, "It seems logical that teachers who have a solid foundation in their content and pedagogical knowledge may have an easier transition to the online classroom" (p. 383). In addition to face-to-face experience, it is important for teachers to have experiences as online learners both in terms of what is happening in K–12 curriculum areas and as teachers and learners in online environments (Compton, Davis, & Mackey, 2009).

The International Association of K–12 Online Learning (iNACOL) (2010) emphasized the need for online learning experiences in Standard F of its national standards for quality online teaching, highlighting the need for teachers to have experienced online learning from the perspective of a student. In this way, teachers are better able to develop and implement successful strategies for online teaching, to anticipate challenges and problems in the online classroom, and to understand the perspective of the online student. Although face-to-face teaching experience and personal online learning experience is necessary for quality online teaching, it may not be sufficient. There is growing recognition that online teaching requires special skills and considerations. According to Appel (2006), "There are aspects of online teaching that are dramatically different than conventional classrooms" (p. 1).

Recognizing the centrality of providing quality professional development for online teachers, the Southern Regional Education Board (SREB, 2009) and iNACOL (2010) adopted standards that reflect three broad areas of competence: (a) academic preparation, (b) technology knowledge, and (c) nine standards grouped as online teaching and learning methodology, management, knowledge, skills, and delivery. By defining good teaching in an online environment, these standards can be used to shape teacher professional development, recruitment, supervision, and compensation (Trotter, 2008). Yet few online high schools report requiring online education for their teachers, and few programs exist to prepare teachers to work in online classrooms (Smith, Clark, & Blomeyer, 2005).

Instead, a majority of teacher education programs address teaching with technology in a single, isolated technology course (Hargrave & Hsu, 2000; Kay, 2006). These single courses are already stretched wide to cover a multitude of technology-related topics and do little to address teaching

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in an online environment. It is unlikely that a single technology course or even undergraduate programs as a whole can address the needs of those who teach in online environments. Archambault and Crippen (2009) state, "This puts a huge burden on the virtual schools themselves, which must provide professional development to get teachers up to speed with the nuances of teaching in an online environment" (p. 383).

Evaluative research that examines the effectiveness of various types of professional development is needed (Archambault & Crippen, 2009). Sprague, Maddox, Ferdig, and Albion (2007) wrote, "Research is needed to help identify the skills that K–12 teachers will need to function as instructors in virtual schools of the future. This must include innovative teacher education programs that provide online practicum experiences" (p. 163). This need was echoed by Rice and Dawley (2009), who called for studies that examine "the outcomes of various PD [professional development] models in terms of the ability to meet the unique needs of K–12 learners, skill progression, and variations in impact on teaching practice" (p. 543).

In fall 2003, the College of Education and Human Development (CEHD) at George Mason University (GMU) began a collaboration with three northern Virginia school divisions to create and deliver online high school courses in the core curricular areas. Under the guidance of a governing policy board, those teachers teaching online courses were required to complete a university-based 5-credit-hour eligibility requirement focusing on online teaching competencies.

In summer 2010, as a result of budget cutting, collaborating school divisions were forced to cancel summer school offerings. With summer school options limited, enrollment in the online high school courses significantly increased, far exceeding the availability of eligible teachers. Responding to this demand, the policy board waived the university-based 5-credit-hour eligibility requirement and instead substituted a required one-day face-to-face workshop. Thus, a little more than half of the teachers teaching in the summer of 2010 had participated only in the one-day workshop, whereas the remaining teachers who were teaching online courses had met the 5-credit-hour requirement. This represented a unique opportunity to explore the impact of two approaches to the preparation of online teachers.

The purpose of this exploratory study was to examine online teachers' self-reported frequency and confidence in performing online learning tasks. Two questions guided this exploratory study:

1. Is there a difference between returning teachers' and new teachers' self-reported frequency of performed online teaching tasks (supporting student learning, supporting content learning, making learning adaptations, assessing learning, and managing learning processes)?
2. Is there a difference between returning teachers' and new teachers' self-reported confidence in performing online teaching tasks (supporting student learning, supporting content learning, making learning adaptations, assessing learning, and managing learning processes)?

Methodology

Participants

During summer 2010, the GMU-CEHD/school division collaborative contracted with 53 high school teachers to teach online courses. Twenty-four of those teachers had previously been contracted by the collaborative to teach at least one online course, were licensed in their subject area, and had completed the university-based 5-credit-hour eligibility requirement. These teachers met the Commonwealth of Virginia's standard for highly qualified teachers. At the end of the summer session, these teachers were asked to complete an online survey. Twenty-one teachers completed the survey and constituted the study's returning teacher group.

To meet increased student demand, school divisions sent e-mail invitations soliciting teachers interested in teaching online summer courses and stipulating the need to meet the Commonwealth of Virginia's standard for a highly qualified teacher, to hold current licensure in the subject area, to be technology proficient, and to be willing to attend a one-day face-to-face workshop. The collaborative recruited 29 licensed high school teachers from local school divisions. At the end of the summer session, the collaborative asked these teachers to complete an online survey. Twenty-four teachers completed the survey and constituted the study's new teacher group.

Demographic data revealed that the two groups were similar in gender and years of classroom teaching experience. However, the groups differed in their reported online teaching experience and participation as online learners. In the returning teachers' group, 80.9% reported prior teaching experience with the online high school collaborative. Conversely, 92% of the new teachers were teaching online for the first time, although 8% reported having taught online in other venues. The majority of returning teachers (85.7%) reported completing one or more online courses in how to teach online plus at least one other online course, whereas 9.5% had completed only online courses related to online teaching. This is reasonable, as the required preparation for teaching courses for the collaborative is conducted online. Conversely, 40% of the new teachers had never taken an online course, and 56% had some online experience but had not completed any online courses related to online teaching. One teacher (4%) reported completing an online course in online teaching. Table 1 (p. 148) presents demographic data.

Instrument

Given the unique opportunity to study the impact of two approaches in the preparation of online teachers, it was necessary that we create an instrument to fit the needs of the study. As a framework, we used a questionnaire developed by Smith (2009) that collected participant ratings of the frequency and importance of 76 online teaching tasks identified by collapsing competencies from the SREB (2009) and the National Education Association (NEA, 2006).

We reviewed the 76 online teaching tasks that Smith (2009) identified for relevance to the online course design model used by the collaborative. We eliminated items from Smith's (2009) survey addressing online teaching tasks not required of study participants. This resulted in a list of 28 online teaching tasks organized into five categories: (a) supporting students learning (six items), (b) assessing learning (six items), (c) supporting content learning (seven items), (d) making learning adaptations (three items), and (e) managing learning processes (six items). Table 2 presents the 28 online teaching tasks.

To elicit responses from participants about the frequency with which they believed they performed the 28 online teaching tasks, we adopted Smith's (2009) 4-point Likert scale ("never," "rarely," "often," "constantly"). To elicit responses from participants about their level of confidence in their ability to perform the online teaching tasks, we selected a 4-point Likert scale ("strongly disagree," "disagree," "agree," "strongly agree"). We created two instances of the instrument—one for returning teachers and one for new teachers—using SurveyMonkey.com, and we sent links to teachers at the completion of the summer session. A cover e-mail requested completion of the instrument, assured anonymity, and thanked teachers. Twenty-one of the returning teachers (86%) and 24 of the new teachers (83%) returned completed surveys.

Table 1. Participant Demographics

Gender	Returning Teachers (*n*=21)	New Teachers (*n*=24)
Male	19.0	12.0
Female	81.0	88.0
Years of Teaching Experience		
None	00.0	00.0
1–3 years	00.0	16.0
4–7 years	28.6	28.0
8–12 years	28.6	20.0
13–20 years	23.8	20.0
More than 20 years	19.0	16.0
Online Teaching Experience		
Current teaching first experience	14.3	92.0
Taught 1–3 non-initiative online courses	04.8	08.0
Taught 1 or more initiative online courses	80.9	00.0
Experiences as an Online Learner		
One or more online courses in how to teach online plus at least one other online course	85.7	00.0
One or more online courses in how to teach online	09.5	04.0
At least one online course but none in how to teach online	04.8	56.0
Never taken an online course	00.0	40.0
Experience as an Online Course Designer		
Yes	52.4	12.0
No	47.6	88.0

Research Context

The online courses. Returning and new teachers in this study taught online courses designed under the auspices of the GMU-CEHD/school division collaborative. Course design and development followed a unique design model instantiated as a series of Web pages linked to form a course. The collaborative developed a proprietary database management system in lieu of using an established course management system (Norton, 2003; Norton, 2005; Norton, 2006). Although a complete description of this model is beyond the scope of this paper, the salient features included creating a "classroom of one" where a teacher and a student are linked in an independent dyad with no student-to-student interaction, a series of problem-based modules constituting each course, systematic processes and strategies embedded in each course to support self-regulation, extensive online resources to support the online teacher, and the centrality of student–teacher interaction and relationship building.

Those teaching the courses had no course design responsibilities but were encouraged to use their judgment and teaching expertise to adapt courses to fit the needs of their individual learners and to supplement, adapt, and/or eliminate course materials as appropriate. In addition, those teaching the courses were not required to facilitate group discussions or group processes. The role of the online teacher might be best characterized as mentor or tutor.

Returning teachers. Returning teachers possessed a current teaching license in the appropriate content area and had completed the required preparation—the university-based 5 credit hours—offered in an online format using the same design model used to develop the online high school courses. In these five courses, teachers were required to complete assignments in a "classroom of one" and engage in sustained, reflective conversations with veteran online teachers and graduates of the master's or doctoral program in instructional technology. Reflecting upon the competencies identified in the literature, these five courses are:

1. Understanding Virtual Schools (EDIT 641) is designed to develop knowledge about the world of online learning for K–12 students and examines the history and current trends of online learning as well as the characteristics and learning needs of K–12 virtual learners.
2. Meet the Online Academy (EDIT 642) focuses on the design model that

Table 2. Summary of Instrument Items

Categories	Items
Supporting Student Learning	Answering questions Fostering student motivation Fostering student time management Fostering student goal setting and goal attainment Modeling written communication skills Stimulating or sustaining student engagement
Content Learning	Using informal Q&A to promote student understanding of concepts Asking questions Offering explanations Presenting examples Guiding understanding of concepts Fostering information use skills Fostering use of electronic or written sources
Assessing Learning	Evaluating student products Evaluating student progress Using informal Q&A to assess student progress Providing procedures and grading criteria Providing interaction expectations with regard to teacher to student and student to teacher Providing feedback for assignments
Making Learning Adaptations	Adapting instruction to meet individual needs Adapting instruction based on student performance Developing intervention plans for unsuccessful students
Managing Learning Processes	Contacting parents Contacting collaborative staff Providing students with basic software support Providing students with basic hardware support Maintaining records of communication with students Explaining course organization

structures and introduces candidates to the online teaching process through role play.

3. Online Mentoring 1: Building Relationships (EDIT 643) focuses on the development of skills related to the role of building relationships for success in online learning. Candidates examine online interpersonal communications and ways to improve and/or refine those communications.
4. Online Mentoring 2: Promoting Self-Regulation (EDIT 644) targets skills related to promoting student self-regulation and strategies to improve and/or refine self-regulatory support for online learners.
5. Online Mentoring 3: Conceptual Learning (EDIT 645) targets skills related to supporting student abilities to develop conceptual and content understanding as candidates examine online communications related to conceptual learning and practice strategies to improve and/or refine those communications.

New teachers. For new teachers, the one-day workshop required prior to teaching the online courses was designed to introduce those competencies developed in the more comprehensive required preparation that the returning teachers had completed. Conducted as a one-day, face-to-face session, the workshop provided abbreviated information concerning the essence of the coursework usually required of online teachers. The workshop was structured to meet three goals: (a) review the instructional design model used to develop online courses (EDIT 643), (b) emphasize the importance of virtual conversations (EDIT 643) that stress a problem-centered and mastery learning focus (EDIT 642), and (c) build awareness of the structures and processes embedded in online courses designed to support student self-regulation strategies (EDIT 644 and EDIT 645).

This workshop was predominantly informational, with lectures on concepts using examples of course materials and previous online student e-mail exchanges. Workshop instructors gave participants a list of links to podcasts and Captivate resources that summarized and reinforced central strategies and structures associated with the online courses. No data, however, were available as to whether workshop participants followed up with these resources. During the workshop, the instructors encouraged participants to ask questions that clarified responsibilities and course materials. In addition, the instructors encouraged new teachers to e-mail the director and coordinator of the GMU-CEHD/school division collaborative with questions whenever necessary.

Results

The first question of the study asked: Is there a difference between returning teachers' and new teachers' self-reported frequency of performed online teaching tasks (supporting student learning [SL], supporting content learning [CL], making learning adaptations [MA], assessing learning [AL], and managing learning processes [MP]? To answer this question, we performed *t*-tests. We found no statistically significant differences between returning and new teachers' self-reported frequency of performed online teaching tasks in each of the five categories. For five of the categories of performed online teaching tasks, the effect size was small. For the category Managing Learning Processes, the effect size was medium. An examination of the means revealed remarkable similarity in returning and new teachers' report of the frequency with which they performed online learning tasks. Table 3 (p. 150) summarizes the independent sample *t*-tests for reported frequency.

The second question of the study asked: Is there a difference between returning teachers' and new teachers' self-reported confidence in performing online teaching tasks (supporting student learning [SL], supporting content learning [CL], making learning adaptations [MA], assessing learning [AL], and managing learning processes [MP]? To answer this question, we performed *t*-tests. We found no statistically significant differences between returning and new teachers'

Table 3. Independent-Sample *t*-Test on Reported Frequency

	Returning Teachers (*n*=21)		New Teachers (*n*=24)				
	M	*SD*	*M*	*SD*	*t* (*df* = 43)	*p*	Cohen's *d*
Supporting Student Learning	3.34	.34	3.37	.43	.214	.855	.06
Supporting Content Learning	3.19	.47	3.11	.46	-.601	.773	.12
Assessing Learning	3.40	.38	3.32	.41	-.571	.189	.17
Making Learning Adaptations	2.98	.65	2.86	.78	-.718	.989	.22
Managing Learning Processes	2.69	.42	2.44	.34	-2.175	.359	.65

Likert Scale: 1 = never, 2 = rarely, 3 = often, 4 = constantly

Table 4. Independent-Sample *t*-Test for Reported Confidence

	Returning Teachers (*n*=21)		New Teachers (*n*=24)				
	M	*SD*	*M*	*SD*	*t* (df = 43)	*p*	Cohen's *d*
Supporting Student Learning	3.50	.34	3.45	.50	-.379	.101	.11
Supporting Content Learning	3.45	.45	3.58	.47	.970	.671	.29
Assessing Learning	3.58	.41	3.51	.54	1.006	.823	.30
Making Learning Adaptations	3.17	.65	3.36	.60	-.560	.740	.17
Managing Learning Processes	3.25	.49	3.33	.45	.619	.705	.18

Likert Scale: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree

self-reported confidence in performing online teaching tasks in each of the five categories. The effect size for all six categories of performed online learning tasks was small. An examination of the means revealed remarkable similarity in returning and new teachers' report of the confidence with which they performed online learning tasks. Table 4 summarizes the independent-sample *t*-tests for reported confidence.

Discussion

Results of this study were surprising to the researchers. Because of the lack of differences in the frequency with which teachers in both groups reported performing a range of teaching tasks and their confidence in their ability to perform these tasks, it would be remiss to not acknowledge the possibility that quality face-to-face teaching experience (Archambault & Crippen, 2009), subject-matter expertise (iNACOL, 2010), and online learning experience (Compton, Davis, & Mackey, 2009) may be sufficient for online teaching in some online learning models. Although SREB (2009) and iNACOL (2010) have proposed a robust set of standards that constitute quality online teaching and researchers have called for teacher preparation that addresses the special skills and considerations characteristic of online teaching (e.g., Appel, 2006), results of this study found no differences between those with extensive preparation for teaching online and those with only a basic understanding of the course design, the structure of online course materials, and expectations and responsibilities. These findings reinforce the literature's recognition of the importance of prior qualifications (such as subject-matter expertise, online learning experience, and experience teaching face to face).

There are, however, several caveats to such a conclusion. First, because the study relied on self-reported data, it is not possible to distinguish between teachers' perceptions and their behaviors. For instance, a new teacher might report frequently offering explanations but actually do it only four times a week, whereas returning teachers might report frequently offering explanations but actually do it eight times a week due to a better understanding of teacher–student interaction. Thus, there would be a practical difference in performance of teaching tasks even though self-reported perceptions demonstrated no differences. In addition, it may be that returning teachers' comprehensive preparation provided them a better filter for self-assessment and a more rigorous vision of what performance ought to be, leading to estimations of frequency and confidence that may have been lower than their actual behavior but consistent with new teachers' reports.

Second, the unique design of the online courses and the expectations and responsibilities of teaching those courses focus on teaching tasks directly related to supporting student learning, content learning, and relationship building. These are tasks consistent with skills often associated with face-to-face classroom experience. Thus, the design itself influenced the performance of online teaching tasks. It may be that online teaching is influenced less by teacher preparation and more by the design of the online learning environment itself. For online learning models that center on teaching tasks, teacher preparation might need only to familiarize teachers with the design model and with responsibilities inherent in teaching in that environment while relying on teacher competence gained from face-to-face teaching experience. A one-day workshop might therefore be sufficient.

Third, standards for online teaching include competencies that address technology competence, management and delivery, and course design. The online course design model for courses taught by teachers in this study did not focus attention on course design tasks, tasks related to management and delivery to groups of students, or those associated with unique technology-supported learning activities (e.g., leading and managing group discussion boards). Therefore, teachers were not asked to perform any of these tasks. Thus, this study did not address those competencies in the context of the two approaches to preparation for online teaching. It may well be that in other online learning models, preparation addressing these competencies would be highly valuable.

Fourth, this study relied on established definitions of teacher competence. We assumed quality face-to-face teaching to be inherent in the Commonwealth of Virginia's standard for designation as a highly qualified teacher. We assumed content expertise to be inherent in the guidelines for obtaining a valid license to teach particular subject areas. We assumed a teacher's technology competence based on both self-identification and school divisions' certification that employed teachers have met the Commonwealth of Virginia's Technology Standards for Instructional Professionals (TSIPs). We made no attempt to verify the actual quality of study participants' face-to-face teaching, content expertise, or technology competence. Study findings must be understood within the constraints of these assumptions.

Finally, a survey methodology presents its own set of unique limitations and challenges. These include the validation of the instrument that is used, the limited extent to which findings can be generalized, and the weakness of self-reported data. The study's instrument would benefit from a confirmatory factor analysis. In addition, although the response rate of this study (86% for returning teachers and 83% for new teachers) was high, the overall sample size was low, limiting ability to generalize to the overall population of K–12 online teachers. Because study findings are based on self-reported data rather than the measurement of observable behavior, they are susceptible to bias (Archambault, 2011). Despite these limitations, data now exist that begin the process of comparing the perceptions of online teachers who have completed a comprehensive preparation program with those who had minimal preparation for online teaching.

Further Research

This study compared online teaching tasks using self-reported data and found no differences between those with robust preparation and those with minimal preparation. To further understand the influence of various approaches to the preparation of online teachers, it is important to examine how online teacher preparation influences actual teaching behavior. Further research should qualitatively examine interactions between students and teachers to investigate implementation fidelity and the degree to which practices are actually implemented in online courses.

National standards suggest that the preparation of online teachers should address a multitude of teaching tasks. Yet different models of online learning might require the performance of only a select group of online teaching tasks. Thus, the design model of online courses influences the types of teaching tasks required of the online teacher. There is a need to better understand how the design of online courses affects the performance of various online teaching tasks. Skill at some tasks may derive from prior face-to-face experience, prior personal online learning experience, and level of content expertise. Skill at other tasks may best be developed in online teacher preparation venues. Further research should examine the interactions between prerequisites for online teaching, online teaching tasks, online teacher preparation, and the online design model.

Conclusion

This study did not support the need for extensive online teacher preparation for those who taught in this online course design model and possessed the prerequisites identified in the literature. If face-to-face experience, personal online learning experience, and content expertise are recognized as prerequisites to online teaching, it may be that preparation for online teaching is best targeted at the veteran teacher within the framework of professional development or advanced graduate study. It may well also be that such preparation for online teaching should focus on a triad of core competencies targeting: (a) understanding the unique attributes of online learning environments essential to effective online course design, (b) understanding and using a range of technology applications unique to online learning (e.g., course management systems, discussion boards, and synchronous virtual classroom tools), and (c) working with virtual groups and the associated concerns with teachers'/learners' online presence and teacher–learner and learner–learner interactions. It is possible and perhaps even likely that the development of this triad of core competencies reflect the domains where robust online teacher preparation is most necessary and relevant.

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