

Design and Development of Field Experiences in K-12 Online Learning Environments

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Abstract: This article describes the instructional design of field experiences in K-12 online learning environments. Couched in the theory of situated cognition and based on established K-12 online teaching standards, these field experiences are slowly gaining popularity in teacher education programs. This is a result of the field beginning to gain awareness of the exponentially growing area of online learning in grades K-12. Teacher education programs need to prepare teachers for online teaching, many of whom will be teaching in fully online and/or blended learning environments. This article offers guidance on how these field experiences might be designed and discusses suggestions for teacher education programs that are readying teachers for K-12 online teaching.

Keywords: field experiences, teacher education, K-12 online learning, virtual schools

In light of the many reform movements underway in elementary and secondary school settings, K-12 online learning is taking the field of education by storm. Although still in its infancy, with a little over 20 years of existence, online learning has spread to every state in the U.S. (Watson, Murin, Vashaw, Gemin, & Rapp, 2011). According to the most recent data (as of 2009-2010), there were over 1.8 million enrollments, representing roughly 55% of public school districts that reported having students enrolled in online learning courses. Students in these online classes were predominately at the high-school level (Queen, Lewis, & Coopersmith, 2011). Above and beyond these supplemental enrollments, over 500,000 full-time students were recorded in statewide virtual schools (Watson et al., 2011). The number of online students is expected to increase as demand on the part of students increases

and as more K-12 schools explore the potential advantages of offering online classes, such as dealing with the difficulties of limited space, scheduling conflicts, credit recovery, and meeting the needs of specific groups of students (e.g., at-risk, gifted, homebound, etc.) (Queen et al., 2011; Setzer & Lewis, 2005).

Another force driving the growing numbers of K-12 online students is state-level policy. Certain states have begun requiring K-12 students to take an online course by the time they graduate high school (Michigan, 2006; Alabama, 2008; New Mexico, 2009; Indiana, 2011; Idaho, 2012). Florida has mandated that all school districts provide online learning opportunities to all K-12 students (Florida Senate, 2011). Idaho (2010) adopted online teaching standards and is also the second state after Georgia (2006) to establish a state-level online teaching endorsement. Currently, the fast-

est growing trend in the field of K-12 online learning is the expansion of blended learning, where the learning environment includes both face-to-face as well as online learning components in addition to homegrown school-district-level online learning programs (Watson, Murin, Vashaw, Gemin, & Rapp, 2010).

Because of this increase, a growing number of qualified K-12 online teachers will be necessary to meet the burgeoning demand. Preservice and inservice teachers will need to learn how to teach online, since many of them will teach in these environments, whether it be in a blended, hybrid, or fully online capacity. In addition to relevant coursework in online pedagogy, instructional design within online learning environments, and curriculum centered on technology tools, teacher education programs need to provide active and contextual field experiences in order for novice online teachers to experience what it is like to teach in a K-12 online learning program. Field experiences have typically taken place in traditional school settings; recently, these experiences have surfaced in K-12 online learning programs. In order to understand the growth of these experiences, it is helpful to examine their evolution.

History of Virtual School Field Experiences

Virtual school field experiences began in 2007 when Iowa State University (ISU) was awarded a Fund for the Improvement of Post Secondary Education Grant for TEGIVS, or Teacher Education Goes Into Virtual Schooling (Compton, Davis, & Mackey, 2009). This initial virtual school field experience at ISU offered practical experiences in Iowa Learning Online (ILO) to first and second year preservice teachers. In the experience, the ratio of mentor teacher to preservice teacher was 1:2. The preservice teachers were enrolled in a one-credit course at ISU, requiring them to spend 15 hours in ILO. The cooperating teacher provided guided observation and hands-on experiences, allowing the preservice teachers to interact with K-12 online students, parents, other online teachers, and course facilitators.

In 2008, Archambault (2011) conducted a national survey to examine the preparation levels of K-12 online teachers. She documented the need for preparation among approximately 600 online teachers. While they reported being somewhat prepared with respect to pedagogy, content, and pedagogical content in their teacher education programs, they reported not being

prepared when it came to issues of technology and technological pedagogical content knowledge.

Then, in 2009, Florida Virtual School partnered with a number of the state universities in Florida, including the University of Central Florida, the University of South Florida, and the University of Florida, to offer virtual school field experiences. Kennedy (2010) examined three pre-service teachers in the University of Florida experience. Each of these teachers was matched with an online instructor for a four-week-long, voluntary field experience. Unlike in the ISU model, these students did not take a course at the University of Florida that was directly aligned with the virtual school field experience. Kennedy, Cavanaugh, and Dawson (under review) found that a voluntary, four-week field experience not tied to a course lacked the opportunity for the students to be able to become active teachers in an online environment.

As an extension of the above studies, Kennedy and Archambault (2012) collaborated to find out the extent to which other teacher education programs and virtual schools were offering or planning to offer field experiences in virtual school settings. To do this, they conducted a national survey and found that only 1.3% of teacher education programs were offering or planning to offer virtual school field experiences. Those who reported that they would like to offer this type of field experience mentioned that they did not know how to design them. The purpose of this article is to offer research-based guidance for the design and development of field experiences in K-12 online learning programs.

Virtual School Field Experiences

Theory

One of the theories used to contextualize virtual school field experiences is situated cognition, which requires an authentic learning environment where the learner can make connections within a given context (Brown, Collins & Duguid, 1989). Learners interact directly with the learning environment via practical, hands-on experiences and reflect on their learning (Brown, Collins & Duguid, 1989). In a typical virtual school field experience, novice online teachers are matched with K-12 online cooperating teachers who serve as their mentors throughout the experience. This relationship can be likened to that of a cognitive apprenticeship, where the novice online teachers observe the online learning environment while the cooperating teachers model their effective online teaching strate-

gies, provide scaffolded support, offer specific feedback for improvement, and make their expert tacit knowledge explicit; in conjunction with this learning, novice online teachers have the opportunity to identify and reflect on the ideas they learn (Collins, Brown & Newman, 1989).

Standards

Standards have been created to assess effective online teaching and can be used to inform the design and development of quality virtual school field experiences. Originating from professional organizations, these standards do not solely concentrate on preparing teachers for online learning; they also cater to meaningful technology integration in general and can be

applied to the vast spectrum of K-12 online learning programs. The organizations and their respective standards include the following:

- Southern Regional Education Board’s (SREB) *Essential Principles for High-quality Online Teaching* (SREB, 2006)
- National Education Association’s (NEA) *Guide to Teaching Online Courses* (NEA, 2006)
- International Association for K12 Online Learning’s (iNACOL) *National Standards for Quality Online Teaching* (iNACOL, 2011; 2008)

A cross reference of expected knowledge and skills for effective online teaching is shown in Table 1.

Table 1. Cross Reference of Online Teaching Standards

General Topic	Professional Organization	Standards
Qualifications, professional development, & credentials	iNACOL	<ul style="list-style-type: none"> • Knows and understands the professional responsibility to contribute to the effectiveness, vitality, and self renewal of the teaching profession, as well as to their online school and community; • Knows and understands the need to coordinate learning experiences with other adults involved in providing support to the student (e.g., parents, local school contacts, mentors) to support student learning; • Knows and understands the need for continuing to update academic knowledge, pedagogy, and skills; • Knows and understands the need for professional activity and collaboration beyond school (e.g., professional learning communities) to update academic skills and knowledge and collaborate with other educators; • Interacts in a professional, effective manner with colleagues, parents, and other members of the community to support students’ success; • Knows and understands the participation in an online course from a student-centered approach; and • Knows and understands the subject area and age group they are teaching.
	SREB	<ul style="list-style-type: none"> • 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; meets the state’s professional teaching standards or has academic credentials in the field in which he or she is teaching; provides evidence that he or she has credentials in the field of study to be taught; knows the content of the subject to be taught and understands how to teach the content to students; facilitates the construction of knowledge through an understanding of how students learn in specific subject areas; and continues to update academic knowledge and skills; and • Has experienced online learning from the perspective of a student; applies experiences as an online student to develop and implement successful strategies for online teaching; demonstrates the ability to anticipate challenges and problems in the online classroom; and demonstrates an understanding of the perspective of the online student through appropriate responsiveness and a supportive attitude toward students.

Table 1. Cross Reference of Online Teaching Standards (continued)

General Topic	Professional Organization	Standards
Curriculum, instruction, and student achievement	iNACOL	<ul style="list-style-type: none"> • Knows and understands the process for aligning teacher and student expectations for the course, in general; • Knows and understands the need to create and explain objectives, concepts, and learning outcomes in a clearly written, concise format and to explain the course organization to students; • Develops and delivers assessments, projects, and assignments that meet standards-based learning goals and assesses learning progress by measuring student achievement of the learning goals; • Knows and understands the relationships between the assignments, assessments, and standards-based learning goals; • Demonstrates competency in using data from assessments and other data sources to modify content and to guide student learning; knows and understands techniques to plan individualized instruction incorporating student data; knows and understands how data is used to modify the content, instruction, and assessment to meet student needs; knows and understands how instruction is based on assessment data; • Knows and understands options to expand student thinking, address styles of learning, and provide avenues for enrichment or intervention; • Knows and understands a variety of methods and tools to reach and engage students who are struggling; • Knows and understands the importance of self-reflection or assessment of teaching effectiveness; and • Knows and understands the role of student empowerment in online learning.
	NEA	<ul style="list-style-type: none"> • Online teachers should have the facility to track student participation in the course, viewing course logs, student postings in the discussion area, and student assignments.
	SREB	<ul style="list-style-type: none"> • Differentiates instruction based on students' learning styles and needs and assists students in assimilating information to gain understanding and knowledge; • Exhibits the ability to assess student knowledge and instruction in a variety of ways; • Provides student-centered lessons and activities that are based on concepts of active learning and that are connected to real-world applications; and • Demonstrates growth in teaching strategies in order to benefit from current research and practice.
Online Pedagogy	iNACOL	<ul style="list-style-type: none"> • Knows the primary concepts and structures of effective online instruction and is able to create learning experiences to enable student success; • Knows and understands the current best practices and strategies for online teaching and learning and their implementation in online education; • Knows and understands the role of online learning in preparing students for the global community they live in, both now and in the future; • Knows and understands the instructional delivery continuum (e.g., fully online to blended to face-to-face); • Plans, designs, and incorporates strategies to encourage active learning, application, interaction, participation, and collaboration in the online environment; • Knows and understands the techniques and applications of online instructional strategies, based on current research and practice (e.g., discussion, student-directed learning, collaborative learning, lecture, project-based learning, forum, small group work); and • Knows and understands differentiated instruction based on students' learning styles.
	SREB	<ul style="list-style-type: none"> • Plans, designs and incorporates strategies to encourage active learning, interaction, participation and collaboration in the online environment; • 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); and • Leads online instruction groups that are goal-oriented, focused, project-based and inquiry-oriented.

Table 1. Cross Reference of Online Teaching Standards (continued)

General Topic	Professional Organization	Standards
Ethics of Online Teaching	iNACOL	<ul style="list-style-type: none"> • Models, guides, and encourages legal, ethical, and safe behavior related to technology use; • Knows and understands the responsibilities of digital citizenship and techniques to facilitate student investigations of the legal and ethical issues related to technology and society; • Knows and understands how the use of technology may lead to instances of academic dishonesty; • Knows and understands resources and techniques for implementing Acceptable Use Policies (AUP); • Knows and understands techniques for recognizing and addressing the inappropriate use of electronically accessed data or information; and • Knows and understands privacy standards about other students and their posting and performance that are outlined in FERPA or other similar guidelines.
	SREB	<ul style="list-style-type: none"> • Models, guides and encourages legal, ethical, safe and healthy behavior related to technology use; • Facilitates student investigations of the legal and ethical issues related to technology and society; • Establishes standards for student behavior that are designed to ensure academic integrity and appropriate uses of the Internet and written communication; • Identifies the risks of academic dishonesty for students; • Demonstrates an awareness of how the use of technology may impact student testing performance; • Uses course content that complies with intellectual property rights policies and fair use standards; • Provides students with an understanding of the importance of Acceptable Use Policies (AUP); and • Demonstrates knowledge of resources and techniques for dealing with issues arising from inappropriate use of electronically accessed data or information; and informs students of their right to privacy and the conditions under which their names or online submissions may be shared with others.
Communications and Interaction	iNACOL	<ul style="list-style-type: none"> • Knows and understands techniques to create an environment that will engage, welcome, and reach each individual learner; • Knows and understands the need to establish and maintain ongoing and frequent teacher-student interaction, student-student interaction, teacher-parent interaction, and teacher-mentor interaction; • Knows and understands techniques to maintain strong and regular communication with students, using a variety of tools; • Knows and understands the need to define the terms of class interaction for both teacher and students; • Knows and understands the process for maintaining records of relevant communications; • Knows and understands the importance of interaction in an online course and the role of varied communication tools in supporting interaction; • Knows and understands the process for facilitating, monitoring, and establishing expectations for appropriate interaction among students; • Knows and understands the techniques for developing a community among the participants; and • Knows and understands the process for facilitating and monitoring online instruction groups that are goal-oriented, focused, project-based, and inquiry-oriented to promote learning through group interaction.
	SREB	<ul style="list-style-type: none"> • Facilitates and monitors appropriate interaction among students; 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; • Encourages collaboration and interaction among all students; and • Promotes learning through group interaction.

Table 1. Cross Reference of Online Teaching Standards (continued)

General Topic	Professional Organization	Standards
<p>Communications and Interaction (continued)</p>	NEA	<ul style="list-style-type: none"> • Be sensitive to problems of misinterpretation, and use an appropriate online tone in course design and course delivery; • Model an appropriate tone, and guide students toward an appropriate tone when they stray; • Foster appropriate online student behavior, model an effective and respectful online tone, guide discussions' tone and substance, and address problems with inappropriate online behaviors such as "flaming"; • Communicate with a number of other stakeholders through a variety of methods, some online, some not; • Foster student-to-student discussion during course design and deliver; • Build in course discussion as a feature of student assessment; • Provide instructions regarding when, where, and how students participate in online discussions; • Facilitate course discussions by intervening appropriately when discussions are either not occurring or are inappropriate; • Foster student-to-student collaboration through the use of online discussions, group projects, team activities, and instructional style; • Demonstrate skill at facilitating discussions, and be reliable guides to student learning; and • Demonstrate the appropriate use of both synchronous and asynchronous communications with students, using one-on-one communications when needed, and fostering and guiding group discussions.
	iNACOL	<ul style="list-style-type: none"> • Demonstrates competencies in creating and implementing assessments in online learning environments in ways that ensure validity and reliability of the instruments and procedures; • Knows and understands the need to define the assessment criteria for the course; • Knows and understands 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; • Knows and understands the implementation of online assessment measures and materials in ways that ensure instrument validity and reliability; • Knows and understands multiple strategies for ensuring the security of online student assessments, academic integrity, and assessment data; • Knows and understands the reach of authentic assessments (i.e., the opportunity to demonstrate understanding of acquired knowledge and skills, as opposed to testing isolated skills or retained facts) are part of the evaluation process; • Knows and understands varied assessment strategies that address levels of ability through a variety of alternative interventions; • Knows and understands the process of continuous evaluation of students to include formative and summative assessments and student feedback, including polls and surveys that reflect student learning progress throughout the course; • Knows and understands the use of effective learning strategies data for an individual student to formulate detail-specific changes in future instruction, based on assessment results and research study (data-driven and research-based); • Knows and understands ways for teacher and students to assess student readiness for course content and method of delivery; • Knows and understands that student success (e.g., grade, level of participation, mastery of content, completion percentage) is an important measure of teaching and course success; and • Knows and understands the importance of student self-assessment.
Assessment and Evaluation		SREB

Table 1. Cross Reference of Online Teaching Standards (continued)

General Topic	Professional Organization	Standards
<p>Assessment and Evaluation (continued)</p>	<p>SREB (continued)</p>	<ul style="list-style-type: none"> • Develops and delivers assessments, projects and assignments that meet standards-based learning goals and assesses learning progress by measuring student achievement of learning goals; • Continually reviews all materials and Web resources for their alignment with course objectives and state and local standards and for their appropriateness; • Creates assignments, projects and assessments that are aligned with students’ different visual, auditory and hands-on ways of learning; • 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; • Provides continuous evaluation of students to include pre- and post-testing and student input throughout the course; and demonstrates an understanding of the relationships between and among the assignments, assessments and standards-based learning goals; • Demonstrates competencies in using data and findings from assessments and other data sources to modify instructional methods and content and to guide student learning; • Assesses each student’s background and content knowledge and uses these data to plan instruction; • Reviews student responses to test items to identify issues related to test validity or instructional effectiveness; • Uses observational data (e.g., tracking data in electronic courses, Web logs, e-mail) to monitor course progress and effectiveness; • Creates opportunities for self-reflection or assessment of teaching effectiveness within the online environment (e.g., classroom assessment techniques, teacher evaluations, teacher peer reviews); • Demonstrates frequent and effective strategies that enable both teacher and students to complete self- and pre-assessments; • Employs ways to assess student readiness for course content and method of delivery; • Employs ways for students to effectively evaluate and assess their own readiness for course content and method of delivery; and • Understands that student success (e.g., grade, level of participation, mastery of content, completion percentage) is an important measure of teaching and course success; and provides opportunities for student self-assessment within courses.
<p>Feedback</p>	<p>iNACOL</p>	<ul style="list-style-type: none"> • Promotes student success through clear expectations, prompt responses, and regular feedback; • Knows and understands techniques for using appropriate communications in support of student engagement through prompt and regular feedback, and setting and communicating high expectations; • Knows and understands the need to provide clear expectations for teacher response time to student queries; and • Knows and understands the need for timely, constructive, personalized feedback to students about assignments and questions.
	<p>NEA</p>	<ul style="list-style-type: none"> • Monitor student learning, and provide students with feedback on their performance; • Review submitted work in a timely fashion (usually within one week of submission), and should provide students with feedback; • Be active and regular participants in their classes; • Take part in class discussions, review submitted work promptly, respond to student questions on a regular and consistent basis, and schedule online meeting times, as needed; and • Attend their online class on a daily basis, and respond to student questions expeditiously.
	<p>SREB</p>	<ul style="list-style-type: none"> • Provides online leadership in a manner that promotes student success through regular feedback, prompt response and clear expectations; • Models effective communication skills and maintains records of applicable communications with students; • Encourages interaction and cooperation among students, encourages active learning, provides prompt feedback, communicates high expectations, and respects diverse talents and learning styles; • Persists, in a consistent and reasonable manner, until students are successful; • Establishes and maintains ongoing and frequent teacher-student interaction, student-student interaction and teacher-parent interaction; • Provides timely, constructive feedback to students about assignments and questions; and • Gives students clear expectations about teacher response time.

Table 1. Cross Reference of Online Teaching Standards (continued)

General Topic	Professional Organization	Standards
Accommodations and Diversity awareness	iNACOL	<ul style="list-style-type: none"> • Is cognizant of the diversity of student academic needs and incorporates accommodations into the online environment; • Knows and understands the diversity of student learning needs, languages, and backgrounds; • Knows and understands how adaptive/assistive technologies are used to help people who have disabilities gain access to information that might otherwise be inaccessible; • Knows and understands the process for connecting with local support personnel to verify student’s IEP requirements or 504 accommodations needed for student success; • Knows and understands legal mandates stipulated by the Americans with Disabilities Act (ADA), the Individuals with Disabilities Education Act (IDEA), the Assistive Technology Act, and Section 508 or other similar guidelines/requirements for accessibility; and • Knows and understands that students have varied talents and skills and make appropriate accommodations designed to include all students.
	SREB	<ul style="list-style-type: none"> • Understands and is responsive to students with special needs in the online classroom; • Understands that students have varied talents and skills and uses appropriate strategies designed to include all students; • Demonstrates knowledge and responds appropriately to the cultural background and learning needs of non-native English speakers; • Provides activities, modified as necessary, that are relevant to the needs of all students; and • Adapts and adjusts instruction to create multiple paths to learning objectives.
	NEA	<ul style="list-style-type: none"> • Demonstrate an ability to use multimedia, as appropriate, in course materials, in ways that comply with Section 508 requirements.
Management	iNACOL	<ul style="list-style-type: none"> • Knows and understands the need to establish criteria for appropriate online behavior for both teacher and students; • Knows and understands effective time management strategies; • Knows and understands online course management tasks; • Provide course materials to students in a timely manner, so that students have all course materials when needed. These include physical materials that may be mailed to students at school or at home, or electronic materials in the form of reference works or Internet links.
	SREB	<ul style="list-style-type: none"> • 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; and • Provides a syllabus with objectives, concepts and learning outcomes in a clearly written, concise format; 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.
Design	iNACOL	<ul style="list-style-type: none"> • Arranges media and content to help students and teachers transfer knowledge most effectively in the online environment.
	NEA	<ul style="list-style-type: none"> • Make appropriate use of the CMS platform’s features, producing documents that are well organized for use by students, and that are kept up-to-date during course delivery; • Be familiar with the full range of CMS elements, and be able to select the appropriate elements while designing and teaching online courses; • Be familiar with online design and content standards, have the ability to determine which standards are appropriate for their course design and delivery needs, and be able to demonstrate use of design and content standards in course-document creation and course delivery; and • Revise course documents to keep them up-to-date and accurate.

Table 1. Cross Reference of Online Teaching Standards (continued)

General Topic	Professional Organization	Standards
Technological Knowledge	iNACOL	<ul style="list-style-type: none"> • Understands and is able to use a range of technologies, both existing and emerging, that effectively support student learning and engagement in the online environment; • Knows and understands the use of an array of grade-appropriate online tools for communication, productivity, collaboration, analysis, presentation, research, and content delivery; • Knows and understands the use of emerging technologies in a variety of mediums for teaching and learning, based on student needs • Knows and understands basic troubleshooting skills and the responsibility to address basic technical issues online students may have; • Knows and understands the need to continuously update their knowledge and skills for using the evolving technology tools that support online learning; • Knows and understands appropriate tools and technologies to make accommodations to meet student needs • Knows and understands critical digital literacies and 21st century skills; and • Knows and understands appropriate use of technologies to enhance learning.
	SREB	<ul style="list-style-type: none"> • The teacher has the prerequisite technology skills to teach online; • Demonstrates the ability to effectively use word-processing, spreadsheet and presentation software; • Demonstrates effective use of Internet browsers, e-mail applications and appropriate online etiquette; • Demonstrates the ability to modify and add content and assessment, using an online Learning Management System (LMS); • Incorporates multimedia and visual resources into an online module; • Utilizes synchronous and asynchronous tools (e.g., discussion boards, chat tools, electronic whiteboards) effectively; • Troubleshoots typical software and hardware problems; • Demonstrates the ability to effectively use and incorporate subject-specific and developmentally appropriate software in an online learning module; and • Demonstrates growth in technology knowledge and skills in order to stay current with emerging technologies.
	NEA	<ul style="list-style-type: none"> • Be familiar with online tools and online infrastructure, including Learning Management Systems (LMS) and Content Management Systems (CMS), and they should understand the appropriate uses of each system to support online course design and delivery; • Answer student questions on certain technical issues, including posting to discussions, submitting assignments, using the Internet, and viewing online grades; • Pay particular attention to the course enrollment process, be able to determine which students are enrolled in the online course, and know how to add and drop students from the course; • Be adept with the various platform features so that they can provide students the opportunity to submit their work online; • Demonstrate an ability to search and use Internet sites so that links to them can be incorporated into course documents; and • Employ CMS features to use and appropriately reference web sites, and have the Information Literacy skills to determine which sites are legitimate and of sufficient merit for inclusion.

Standards have also been created by iNACOL to guide the design of quality online courses (2011), and these can be used in the design of a field experience in online teaching as well.

Laying the Groundwork

Collaboration between teacher-education programs and virtual schools. The first and foremost step in planning for a virtual school field experience is for the teacher-education program to partner with one or more virtual schools based on the needs of preservice and inservice teachers. Once this relationship is established, personnel from the virtual school and the teacher-education program can start structuring the experience. Beyond constructing the virtual school field experience, the benefits of this collaboration also include a recruiting venue for the virtual school, providing them with a pool of teacher education program graduates who could potentially work at the virtual school as online teachers. It also provides practice-based connections, which can help create additional professional development cooperatives in which virtual schools can host professional development opportunities for the teacher education program while the teacher education program can host similar continuing education venues for virtual school teachers. Via this collaboration, a wealth of theoretical and practical knowledge can be shared for both preservice and inservice teachers.

Assessing User Needs. As is true in any instructional design process, users' needs must be assessed to determine what goals need to be met, the backgrounds of those taking the course, and how curriculum will be designed to meet all users' needs. The design of a virtual school field experience should be general but needs to be contextual as well. For example, the course should take into account whether novice online teachers want to be placed in a virtual school where teachers do not create their own content or one in which teachers create their own online instructional materials. It is also crucial to take into account the grade level and content of interest for each novice online teacher and do the best to match teachers as closely to their placement request as possible, so as to place them in an authentic and relevant setting. In most cases, multiple virtual schools might need to be contacted and partnered with, especially if the teacher-education programs are placing teachers in kindergarten through 12th grade, since not all virtual schools offer online learning opportunities at every grade level.

Taking Policy and Certification into Account.

In these experiences, it is also necessary to understand the state- and district-level education policy when it comes to K-12 online learning. For instance, some states are more progressive and require K-12 students to take an online learning course in order to graduate. These states will likely be more willing, if they are not already, to allow field experiences in virtual schools to count towards the teacher-certification process. However, most often, virtual school field experiences are voluntary and occur in addition to traditional face-to-face field experiences (Kennedy, 2010). Because of this, the experience turns into a balancing act, forcing novice online teachers to negotiate how much time and effort they are willing to dedicate to the experience.

Cooperating teacher training. Great teachers are not always the best mentors (Rowley, 1999). Because of this, it is crucial for the virtual school and/or teacher-education program to provide training for cooperating teachers, instilling in them the crucial role they play in the professional development of novice online teachers (McKenna, 1998). Providing training for cooperating teachers is an investment for the teacher education program and the virtual school because they will be building the base of teacher leaders needed to sustain their organizations (Zimpher, 1988) and the teaching profession as a whole. Training should be focused on taking mentoring of teachers to the "educative" level (Wang & Odell, 2002). At this level, cooperating teachers need to facilitate the teachers' path to develop a "commitment to inquiry," where cooperating teachers consistently ask "difficult questions" to their novice online teachers and encourage them to continue to pose difficult questions to themselves throughout their entire teaching career (Dana & Yendol-Hoppey, 2007, p. 25). In addition, a cooperating teacher must encourage the novice teacher's commitment to equity (Achinstein & Barrett, 2004) and ensure that he/she will continue to advocate for all students. Cooperating teachers need to also engage in their practice and study it in order to better the future teachers with whom they work (Feiman-Nemser, 2001).

Practically speaking, a cooperating teacher-training program for virtual school field experiences would have four main goals. First, cooperating teachers need to have a solid knowledge of their organization and its mission, goals, and objectives, so as to instill those into teacher training. Second, cooperating teachers should gain a solid understanding of their roles as mentors by reading and dialoguing about key

mentoring literature from experts in the field including Feiman-Nemser, Achinstein, Wang, Odell, Dana, and Yendol-Hoppey. Third, they should interact with one another and reflect on their teaching experiences thus far, understanding their own background and what they can offer a prospective novice online teacher. And fourth, they should engage in the development of the virtual school field experiences and help with the matching process of novice and expert online teachers.

Another issue that must be considered when thinking about cooperating teachers in virtual school settings is making sure they receive credit for their efforts (Futrell, 1988). They could be given this in a number of ways including monetary compensation, release time from other teaching duties, or continuing education units toward their recertification process. This would allow them to be more invested in the experience because they are being recognized and rewarded for their participation.

Design and Development

Overall structure. The virtual school field experience should span the length of an average semester, or 16 weeks, and be tied to a credit-bearing course if possible (Kennedy, 2010). This will not only allow for ample time to immerse novice online teachers in the online learning environment, but it will also offer a greater amount of time for them to engage in meaningful mentor-mentee activities. The relationship between expert online teacher and the beginning teacher should start with a meet and greet prior to, or at the start of the field experience. Included in this meeting should be an anticipatory reflective process, where both the cooperating teacher and novice online teacher write down and share with each other a list of what they need/want from the experience. This might be helpful in ensuring a positive experience for all involved (Kennedy, 2010; Kennedy, Cavanaugh, & Dawson, under review).

During the first few weeks of the virtual school field experience, the university/college instructor should concentrate on helping those learning to teach online reflect on their past online learning experiences. Often times, this helps teachers shed any preconceptions or misconceptions about online learning (Davis, Mackey, & Compton, 2009; Kennedy, 2010; Kennedy, Cavanaugh, & Dawson, under review). This process will allow them to look at the virtual school with fresh eyes. Teacher educators need to give preservice and inservice teachers a chance to unpack their beliefs, deconstruct their experiences, and reflect on how their

past relates to their new learning opportunities. Examples in the research literature in which preservice teachers were asked to reflect on their past experiences include the creation of autoethnographies/ autobiographies of their education (Coia & Taylor, 2005), writing of reflection journals with prompts on a given topic (Brownlee, Purdie, & Boulton-Lewis, 2001), and construction of portfolios documenting past experience (Antonek, McCormick, & Donato, 1997). By providing teachers a way to connect their past to their present learning, powerful experiences in teacher preparation can occur (Smith, 2006).

The virtual school field experience itself should be designed in a blended format. The blended format would be especially helpful for novice online teachers who have not taken an online course previously. Ideally, the course should start out with at least a four-week introduction to K-12 online learning. This introduction would need to include relevant literature and reports regarding K-12 online learning. Especially important to include would be *Keeping Pace* (Watson et al., 2011), an annual report, which provides a broad overview of the current state of K-12 online learning and also introduces the various models of virtual schools that exist.

During the first four weeks, learning for participants in the virtual school field experience should be designed in a similar fashion to how the K-12 virtual school classes are structured. This will allow the novice online teachers to encounter firsthand what K-12 students experience in the online environment. Essential in the design would be interactivity so the novice online teachers are active in their learning, allowing them to interact, reflect on, and gain a deeper understanding of new knowledge (Berge, 2002; Kennedy, 2010; Kennedy, Cavanaugh, & Dawson, under review). Teachers should experience the same instructional strategies in this field experience course that they would be expected to incorporate when teaching their own students in blended and/or fully online learning environments. If the university course instructors do not model the strategies they expect teachers to use with online students, novice online teachers would be less inclined and less likely to use interactive techniques in their future learning environments.

After the broad context of online teaching, online learning, and virtual schooling is presented during the first four weeks of the experience, the remaining 12 to 13 weeks should be devoted to the development of the relationship between the cooperating teacher and the

novice online teacher and dedicated to his/her discovery of what it is like to be an online teacher. While this is going on, the university course itself should run parallel to the field experience so as to allow the novice online teachers an opportunity to regroup and reflect on their experiences with their fellow teachers and with the university course instructor (Kennedy, 2010; Kennedy, Cavanaugh, & Dawson, under review). The connection between teacher-education courses and teachers' field experiences has been documented as necessary (Darling-Hammond, 2009). This hybrid setting "where academic and practitioner knowledge" combine to provide "the service of teacher learning" is key to offering a rich and integrated curriculum (Zeichner, 2010, p. 89).

Several topics that need to be covered in the virtual school field experience or in additional courses that accompany the experience include, but are not limited to, instructional design for online learning environments, online pedagogy, introduction to K-12 online learning, communicating in online environments, interaction, motivation, engagement, assessment, feedback, academic honesty, access and equity, legal and ethical issues, diversity and special needs, and information systems. Possible activities for novice online teachers to engage in might include grading student work, facilitating discussions, practicing time-management skills in the online environment, creating course content and other learning resources, collaborating and co-teaching with a content team, and planning and hosting synchronous teaching sessions via online video conferencing software.

An additional important topic is introducing and actively using emerging technologies that are useful in K-12 online learning environments. In terms of the technology tools that are involved in virtual school field experiences, teachers should understand the importance of the adoption of innovation, and those who design the field experience should take into account the need to help build the confidence and efficacy of meaningful use of new technologies to enhance the K-12 online learning environment. Preservice and inservice teachers new to online learning also need to learn the information systems that are used at the virtual school, including what information is housed in the systems and how online teachers can access and use pertinent information to make changes to their communication and instructional strategies (Kennedy, 2010; Kennedy, Cavanaugh, & Dawson, under review). This can be discussed in the university course

that is aligned with the field experience but can also be emphasized by the cooperating teacher during the field experience itself.

The role of the cooperating teacher. A crucial part of the virtual school field experience is the role that the cooperating teacher plays in the development of the novice online teacher. Cooperating online teachers should feel responsible for mentoring novice online teachers so that they can get a full understanding of what it would be like to be an online instructor. Cooperating teachers should not only provide information (Villani, 2002), offer support and encourage (Huling-Austin & Murphy, 1987), coach (Rhodes & Beneicke, 2002), give emotional support (Odell, 1990), encourage creativity (Yendol-Hoppey & Dana, 2007), model effective behavior (Williams, 1993), and provide guidance in instruction and professional development (Rowley, 1999). They should more importantly provide mentoring that is "educative" (Wang & Odell, 2002). Mentorship is important to the development of novice online teachers, giving them an opportunity to work with an experienced online teacher as an apprentice (Glazer & Hannafin, 2006). Enough time and structure needs to be built into the experience to encourage mentoring relationships. Cooperating teachers need to actively guide new teachers in helping students with new online learning environments, provide school-specific information, give feedback, and engage in consistent communication.

Cooperating teachers should be urged to form strong relationships with their partnered novice teachers by understanding the prior knowledge that the teacher brings to the experience (Dana & Yendol-Hoppey, 2007). Cooperating teachers need to guide the teacher's "professional knowledge development" to include curriculum, pedagogical, content, context, pedagogical content, student learner, and classroom-management knowledge (Dana & Yendol-Hoppey, 2007, p. 28). Novice online teachers should be able to count on their cooperating teachers to encourage them to engage in ethical work, collaboration, inquiry, and equity (Dana & Yendol-Hoppey, 2007). The cooperating teacher should establish an active learning environment for the teacher that includes managing the online classroom, interacting with students and encouraging interaction between students, motivating students in their assignments, translating teaching from face-to-face to the online format, navigating the course-management system and student information systems,

learning to build relationships with students, creating online content, differentiating lessons and providing one-on-one assistance to students (iNACOL, 2008).

Discussion

Because field experiences in virtual school settings are a very new development within select teacher education programs, the literature base surrounding these placements and their development continues to grow. Currently, only a very small minority (1.3%) of responding teacher-education programs offer virtual school field experiences (Kennedy & Archambault, 2012). Due to the growth in K-12 online and blended learning, this percentage is bound to continue to increase, albeit slowly, in coming years.

In addition to offering these virtual school field experiences, teacher-education programs need to provide coursework that includes online pedagogy curriculum as well as instructional design work in online learning environments. Programs also need to develop consistency in models in terms of length and structure. All too often, these experiences do not allow for enough time for quality mentoring. Even if sufficient time is provided, sometimes cooperating teachers are lacking the proper training to be effective mentors. Consequently, it is crucial for teacher-education programs and/or K-12 online learning programs to provide training for cooperating online teachers, instilling in them the critical role they play in the professional development of the novice teacher (McKenna, 1998). Additionally, it is important to consider providing incentives to the cooperating teachers so that they feel invested in and valued.

By connecting teacher-education programs with virtual schools (Kennedy & Archambault, 2011) and offering models to follow (Kennedy & Archambault, 2012), it is hoped that these experiences will continue to become more consistent from one teacher-education program to another. Ultimately, future teachers need to be able to acquire an understanding of the complexity of relationships among students, teachers, methods, content, and emerging technologies, and then be able to apply this both in face-to-face as well as in online settings. Because the growth of K-12 online learning is exponential, teacher-education programs need to start thinking about offering field experiences in K-12 online learning programs, as well as courses in online pedagogy and instructional design in online learning environments. This preparation may initially be developed as stand-alone courses and offered as something

that teachers can choose to take part in, such as that which is included in online teaching endorsements or graduate certifications. Eventually, however, teacher - education programs may need to be restructured to include within their traditional coursework and field experiences, training that provides the necessary knowledge, skills, and dispositions to ensure that all teacher candidates are prepared for online learning environments which are increasingly becoming part of the educational landscape of the 21st century.

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