
Tiers Without Fears: A Model for Teaching Preservice Teachers How to Teach Online

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This article discusses a preparation model (ATOP) for teaching online pedagogy to preservice teachers. The steps toward successful incorporation of online teacher training are explained. The article profiles the need for teacher preparation programs to see online education as a requirement and not an option toward preparing teachers for their future.

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Research regarding the use of emerging technologies over the last four (4) years has indicated the increased use of online technologies for K-12 settings (Johnson, Adams, & Cummins, 2012). Surprisingly, state standards and other guiding documents for revised K-12 certifications have given little attention to the trend in this area of pedagogy despite the research documented in reports such as the New Media Consortium *Horizon Report 2012: K-12 Edition*. Research presented by Miller and Ribble (2010) suggests that the reason for limited reform in this area is due to the irregular and random shift within K-12 systems. It is projected that most of the 86,000 new teachers entering the workforce will begin without online teaching skills (Miller & Ribble, 2010). *Keeping Pace with K12 Online Learning*, an annual report, has for eight (8) years reported that online education is growing. In 2011, the report indicated that online teaching is a necessary part of the job description for many new teachers. The documented prominence of online technology use and the absence of program elements that prepare teacher candidates to use these technologies, indicate a possible void in teacher preparation programs. As such, it is an obligation of teacher preparation programs to include fundamental online teaching and learning strategies in order to prepare teachers to excel in the teaching environment (Miller & Ribble, 2010). While it is less than ideal to squeeze more curricula in the already extended preparation programs of Pennsylvania, as teacher educators we cannot continue to ignore introducing this domain of pedagogy.

Following the leads of other states, the Pennsylvania Bureau of Teacher Preparation and Certification has begun plans for developing guidelines to offer an online teaching

endorsement. The workgroup met in late May 2013 to discuss the format of the endorsement and standards. Plans are for a formal announcement to occur in Fall 2013 pending revisions and alignment with iNACOL (International Association for K-12 Online Learning). Most online teaching state endorsements include mandates for coursework and field experience beyond the preservice level (Quillen, 2011). Research of Hathaway and Norton (2012) suggests that more experienced teachers should be targeted for online teacher training as opposed to those new to the field. They recommend teachers delivering online courses should be credentialed through graduate and post-baccalaureate programs of study. Research suggests that the development of a teacher becomes more sophisticated with experience, thus giving greater ability to transform instruction using online modalities (Hathaway & Norton, 2012). Idaho and Georgia established state level online teaching endorsement in a post-baccalaureate fashion, whereas Florida requires all initial teacher certification programs to have online learning field experiences. From a study completed at Boise State University (Dawley, Rice, & Hinck, 2010), over 53% of the respondents expressed the desire to have graduate coursework in online instructional technology and design.

This article will detail the initiative of one small, private institution that has begun the careful and thoughtful incorporation of the foundations for online delivery without sacrificing other competencies. Based on the research of Fuller (1969) and preservice teacher development, the addition of online pedagogy was strategically placed along the continuum of teacher preparation as recommended by Archambault (2011). In addition to the need for revised pedagogy, the institution strongly believes the field of instructional design and technology was not to be lost by the common myth that all teachers can design online instruction without training. As a result, they incorporated the basic fundamentals of online

pedagogy in the skill sets of synchronous web conferencing delivery, learning hierarchies, modulating computer-delivered instruction, and developing successful blended courses in concert with face-to-face learning embedded at levels of appropriate candidate preparation. According to Kerr (2011), best practices for delivering online instruction to high school students include multiple sources of online content, timely feedback, learner control, student-directed progress monitoring, clear embedded checking and assessment, online discussion, synchronous hands-on learning, social networking, and assessable hardware and software. The small, private institution has utilized the 2011 research of Kerr and iNACOL to help provide a foundation for candidates.

This article additionally suggests that undergraduate programs should plan to only offer the fundamentals of online pedagogy that will provide the foundation for a post-baccalaureate online teaching certification or similar training. Standards from the International Association for K-12 Online Learning (iNACOL) provides the basis for teacher preparation for online teaching. The standards divide the preparation guidelines into two categories: teacher knowledge and understandings, and teacher abilities. The guidelines cover online pedagogy in creating learning experiences, supporting learning and engagement, fostering active learning and interaction, providing feedback and instructional support, understanding ethical and legal issues, reaching diverse learners, effectively assessing and reporting data, using data to make instructional decisions, and valuing online collaboration and communities. Throughout the iNACOL teacher quality standards, proper use of online technologies and design are connected to developmentally appropriate practice (International Association for K-12 Online Learning, 2011).

A Case for Online Pedagogy

We now turn our attention to a discussion of the perspectives teacher education faculty and candidates have toward online teaching and the reality of the future job market for teachers. This section asserts that programs offering a stratified introduction to online teaching strategies assist not only in understanding the direction of education, but assist in adoption of good practices for the future.

Not surprisingly, nearly all education departments or schools have one or two faculty members that resist teaching online pedagogy. This is due, in part, to teachers continuing to teach in the fashion in which they were taught. So rather than making the transitions, traditional forms of teaching continue to be practiced and presented to preservice teachers (Miller & Ribble, 2010). While changing faculty beliefs can be difficult, presenting the competencies of online pedagogy can be even more problematic. Support and training are crucial for faculty members that are faced with presenting online teaching techniques when they themselves may not have taught online. According to Hathaway and Norton (2012), in order to fully understand the pedagogy and modality, faculty members should be given opportunities to teach online prior to teaching candidates.

It is not uncommon to find that traditional teaching assignments include an online class for the district's cyber academy (Hathaway & Norton, 2012). According to the annual report, *Keeping Pace with K12 Online Learning* (Evergreen Education Group, 2012), there were over 619,847 enrollments in K-12 online courses in 2011-2012, a 16% increase from the preceding year. In addition, part-time opportunities are predicted to soar over the next five years as districts save money by using "adjunct" faculty to teach one or two online courses (U.S. Department of Education, 2012). Recently, trends for blended and online courses have shown to be a cost savings for struggling school districts (U.S. Department of Education, 2012). Further, the common core standards

have allowed online content to be delivered across state lines, no longer restricting the origin of education and enabling teachers to be contracted nationwide depending on the school classification (*Keeping Pace with K12 Online Learning*, 2011). Candidates now have the potential to work part-time, consult, and design online instruction outside of traditional full-time teaching positions.

In Pennsylvania during the 2011-2012 fiscal year, the charter school funding reimbursement was removed which resulted in the explosion of online education. It was determined that this decision would cause districts to lose approximately \$6,500 per student attending a charter school. With this reduction in funds and the loss of student body, public schools began operating their own versions of cyber academies. Currently there are 76,000 students in Pennsylvania enrolled in online instruction, and it is estimated that at least 174 of Pennsylvania's 500 school districts are under contract with nonprofit or for-profit vendors of online courses. In addition to the 76,000 students enrolled in public school online courses, there are 32,322 students enrolled in cyber charter schools (*Keeping Pace with K12 Online Learning*, 2012, p. 141). Online programs offered by Pennsylvania school districts do not have to be authorized by the Pennsylvania Department of Education (PDE). Therefore, they do not have separate reporting data on performance. While some might consider it to be for the wrong reasons, Pennsylvania public education appears to be in the online education market and it is a necessity for teacher preparation programs to begin training candidates to embrace the challenges of their profession.

An Obligation of Teacher Preparation Programs

While most preparation programs do a great job meeting the challenges of traditional classroom settings, online classrooms are very

different. Programs should carefully integrate fundamentals of online pedagogy to help support future endorsements or training our recent graduates will need for teaching online.

When asking a class of preservice teachers how they envision themselves in three to five years, nearly all say that they will be in a classroom. Having grown up in the traditional brick and mortar model, they, too, believe this will be the setting in which they teach. According to Quillen (2011), the idea of teaching as we were taught will be soon gone and nearly every new teacher will be involved in virtual learning in some capacity. And, in fact, many traditional classroom teachers who have been reassigned to teach online, struggle with the change. New teachers are being hired under job descriptions that indicate a role in online instruction. Most K-12 teachers that have been assigned to online classes have had no formal training in online instructional design and technology (Dawley, Rice, & Hinck, 2010). In many cases, the teachers seek their training from the Internet or from those who have previously used this modality. The survey included 830 teachers nationwide, only 5% of who reported having certification in online education. It was also reported that only 11.9% of all preservice teachers receive online teacher training from their college or university and only eight institutions reported that they offer a certification in online teaching. No Pennsylvania colleges or universities indicated they had such training and only one of eight institutions require a field practicum at a virtual school.

From a school district perspective, hiring candidates trained in online pedagogy is more economical than training someone (Quillen, 2011). While it is too early to determine whether an online experience prior to employment influences one's chances for a position, it appears likely that it will factor when K-12 systems are looking for particular skill sets in

candidates for online teaching assignments. In several references mentioned in the research of the U.S. Department of Education (2012) it appears that the cost savings of hiring trained teachers and offering online education is worth consideration by districts looking to maximize savings. As Pennsylvania seeks to add an endorsement in online teaching, teacher preparation programs will be given greater flexibility to help prepare candidates. This supports the concept of providing a fundamental preparation that will later lead to an advanced understanding of online learning.

Articulated Tiers of Online Pedagogy (ATOP)

In this section, the Articulated Tiers of Online Pedagogy (ATOP) Model used for introducing fundamentals of online pedagogy aligned to the development of preservice teachers is explained in a four-tier process. The ATOP model was developed to carefully stratify the basic fundamentals of online pedagogy into teacher preparation. It by no means is designed to fully prepare a candidate to teach online. It is, however, a model to help blend fundamental online learning exercises and support hybrid instruction including both synchronous and asynchronous development for today's classroom.

Figure 1 demonstrates the four-tiered program that implements quality pedagogy for online instruction that can be gradually introduced to teacher candidates. Tiers progress in complexity and are designed to help candidates adapt best practice in the traditional classroom to successful strategies in the online instructional environment. In order to help align this model for online specific teacher training, iNACOL (2011) standards are matched to each tier.

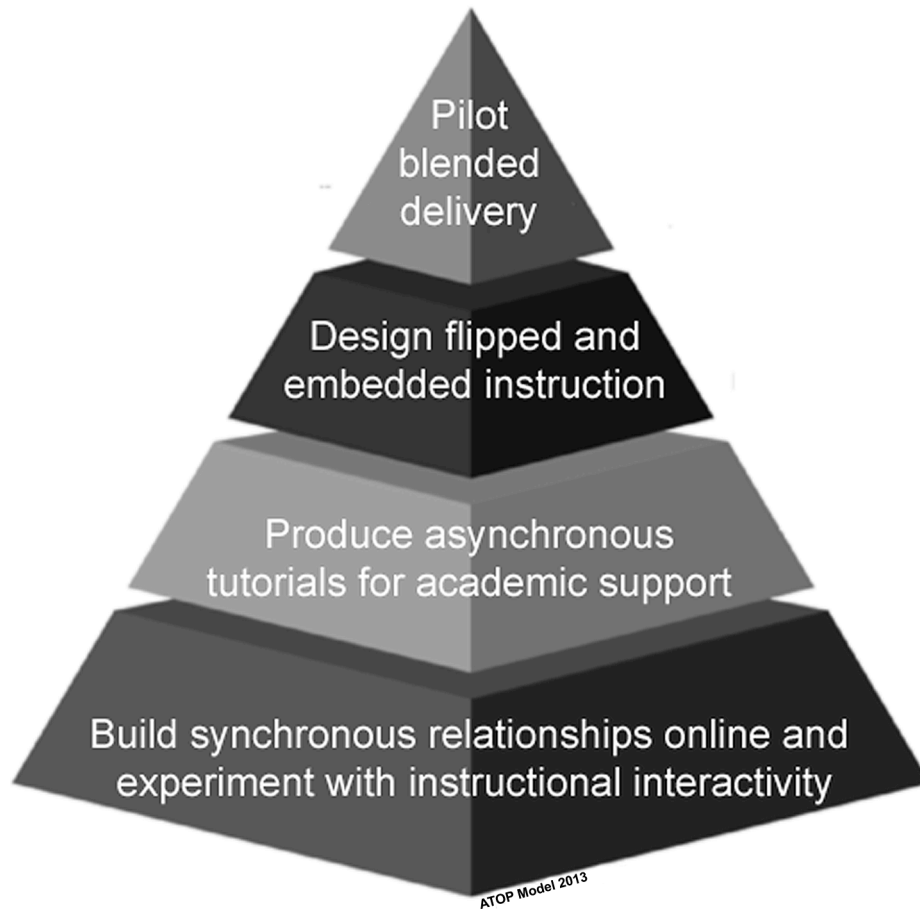


Figure 1. ATOP: Articulated Tiers of Online Pedagogy

Tier I: Build Synchronous Relationships Online and Experiment with Instructional Interactivity

The iNACOL (2011) standards A, *knowing the primary concepts and structures of effective online instruction*; and B, *understanding and using a range of technologies to support student learning and engagement* are fundamentally introduced pertaining to synchronous instruction in Tier 1. This section discusses the first tier and how it sets a foundation for subsequent coursework that follows throughout the candidates' preparation.

The first tier in the ATOP model involves the dual purposes of building synchronous relationships online and exploring the interactivity capable through an online learning environ-

ment. This tier occurs during an early field experience where students concurrently observe and assist in traditional classroom environments. At this level of field experience, teacher candidates are novices in traditional instructional practices. Introducing the first tier at this novice level is ideal because teacher candidates are not yet comfortable with traditional instructional delivery and have not yet developed a preference for it. Building pedagogy for both environments during the same time period allows candidates to hone skills in the environments simultaneously prior to preference forming the sole use of traditional classroom instruction. The use of online instruction is designed to become a systematic process because its presence is known from the beginning of the teacher education program. It

grows along with the teacher candidates' pedagogical experiences.

At this lowest tier, teacher candidates are introduced to a system of synchronous online delivery known as web conferencing. They are trained in the uses of the program and experiment with the tools for instructional delivery prior to providing any instruction. The majority of the teacher candidates in early field experiences could be classified as “digital natives”; they have grown up in a world that is infused with technology and prefer frequent contact with it (Prensky, 2012). These candidates, according to Prensky (2009), are classified as digitally aware and wise because they have experienced the “digital enhancement” of a technology-rich education. Therefore, they quickly become adept at the mechanics of delivering web conferences because the tools used for online instruction parallel other popular forms of widely used word processing and presentation technology.

Once trained in using web conference software, candidates are given the opportunity to design exploratory courses for students in a nearby school. The local education association selects topics based on K-12 pupils' interests. Candidates are able to experiment with making material engaging and interactive in the online environment while getting immediate feedback from the students signed into the virtual classroom. Candidates embed opportunities for the use of chat features for discussion and response. They utilize cameras and quizzing and polling features to assess and collect data from their student population. Through a virtual field experience and specific presentations, candidates learn both the benefits and drawbacks of online delivery to K-12 students without the responsibility of delivering an entire lesson (Kennedy & Archambault, 2012). During this experience, candidates learn to be flexible and resourceful, as web presentations do not always flow as planned. The experimentation in online delivery at this tier leads to

more purposeful use of technology for academic support in the next tier.

Tier II: Producing Asynchronous Tutorials for Academic Support

The production of asynchronous tutorials for academic support in Tier II addresses the rudiments of the iNACOL (2011) standards F, *familiar with diverse academic needs and accommodations*; and K, *able to arrange media and content to help students and teachers transfer knowledge*. This section informs candidates of how technology can support instruction when designed and produced properly.

Tier II instruction is integrated into the sophomore-junior level methods courses where teacher candidates are instructed in theory and best practices in content-specific courses. Candidates have been taught the principles of basic lesson design and are ready to begin to differentiate content, assess formatively, and customize units of instruction.

It is during these courses that candidates are involved with learning effective strategies and techniques to engage all types of learners with the goal of improving academic achievement. During these courses teacher candidates are taught to use screen capture tools while operating popular classroom presentation software such as those provided by *SMART®* and *Promethean®* interactive whiteboards. Teacher candidates used internal microphones to record audio for direct instruction on an assigned concept. Teacher candidates must demonstrate the concept on screen using classroom presentation software. This process results in short instructional tutorial videos that assist students through a skill or activity with which they may be struggling. The skills gained in this activity allow teacher candidates to implement tutorial videos on a school website or to provide tutorial help in an online environment in their future careers. The candidates gain experience in creating concise instructions and explicit expectations as part of

the tutorial creation process. They also gain fluency with the tool and applications of common video capture and classroom presentation software. The skills acquired during asynchronous tutorial construction build the foundation for more in-depth asynchronous and embedded instructional models that are implemented in the next tier.

Tier III: Designing Flipped and Embedded Instruction

Tier III of the ATOP model is implemented in the junior and senior level methods courses. During these certification-level specific courses, students learn more about the broad picture of sound instructional practices. At this level, students have a foundational content knowledge and are beginning to implement subject specific instruction across curricular areas. They are working on developing instructional units in both the traditional and online settings. Tier III instruction aligns with iNACOL (2011) standards C, *plans, designs, and incorporates strategies to encourage active learning*; and H, *develops standards-based assignments and measuring student achievement of the learning goals*.

In preparation for unit construction, students continue to examine models for learning in both traditional and online settings. One of the online models in which they receive instruction is the concept of “flipping the classroom.” This model, which was first developed by Jonathan Bergman and Aaron Sams, replaces the direct instruction of class time with “more meaningful learning activities” completed during regular class time (Overmyer, 2012). Direct instruction is relocated and reformed into instructional videos, screencasts, and online learning modules that are presented outside of class time allowing for more student-centered engagement during class hours (Overmyer, 2012).

With this classroom structure as context, teacher candidates use the video capturing

skills acquired in past courses to build quality “vodcasted” instruction for a flipped classroom model. Candidates create quality video instruction and develop direct instruction skills while continuing to hone their abilities in providing concise instructions and explicit expectations for student learning. The candidates continue to improve their online lesson construction through the use and experimentation with instruction from Kahn Academy, Internet videos, teacher-made and commercial-made vignettes, Web 2.0 products, and so on. These items, according to Johnson and Renner (2012) assist in making online “vodcasted” education both free and accessible. They also assist students with integrating strong content into their online teaching pedagogy. Teacher candidates are exposed to models and examples of online instruction and are trained in discerning between models designed for quality student engagement and those that are less effective in engaging students in an online environment. Candidates are encouraged to use interactive delivery methods that seek to engage pupils with the use of formative assessment, student discussion, immediate teacher feedback, and personal reflection and response. The experiences gained during this level of pedagogy set the stage for further integration into blended delivery systems piloted during Level IV and V field experiences at the final tier.

Tier IV: Piloting Blended Delivery

This final ATOP tier occurs during the last levels of the field experience, usually during a pre-student teaching or student teaching field experience. For success at this level, teacher preparation programs must have the cooperation of student teaching placement sites that allow the online teaching to occur. Once a partnership with a traditional school is established, the cooperating teacher and the teacher candidate assess student needs, as well as content strengths, to begin developing an online lesson or unit. Teacher candidates are placed with cooperating teachers who have been

trained in setting up online environments and are best able to facilitate the blended learning experience. The iNACOL (2011) standards introduced in Tier IV are G, *creates and implements assessment of online learning attending to validity and reliability*; and J, *interacts in a professional, effective manner with colleagues, parents, and others to support students' success*.

Teacher candidates use both synchronous and asynchronous methods to deliver blended learning to their assigned groups of students.

For portions of the instruction where students utilize synchronous methods, recordings of the sessions become a valuable teaching and reflective tool. Candidates are able to review their recorded sessions with students and reflect on improved methods of engagement, feedback, and delivery to enhance their online instructional pedagogy. Candidates combine this reflection with feedback from the cooperating teacher and administrators at the partnering school to continue to improve online delivery methods.

Figure 2 demonstrates the articulated nature of the online pedagogy for preservice teachers. The threaded example shows how the competencies build upon each other and provide the candidate with the tools necessary to conduct assessment and design aligned online instruction.

Tier I	Tier II	Tier III	Tier IV
Career exploration synchronous web conference presentation on becoming an Entomologist.	Five-minute screen capture using diagrams with <i>ActiveInspire®</i> on how to visually differentiate between moths and butterflies aligned to SAS common core.	Designed a flipped lesson using SAS common core, produce an online video on types of Lepidoptera, create an aligned assessment, and plan a follow-up lesson for face-to-face delivery.	Following district curriculum and standards, pre-test 12 th grade students on Lepidoptera sub groups. Conduct a gap analysis and develop an online module with synchronous tutoring to address gaps. Post-test students and report results.

Figure 2. ATOP Example

Conclusion

Even though there is much that needs to be done to ensure quality online pedagogy in teacher training, there is more than enough research that provides the starting point for preparing teacher candidates to teach online. Online learning can no longer be considered a “fad” that will quickly pass. The ATOP model demonstrates how to adapt to prepare future teachers for settings other than the traditional classroom. The model demonstrates how to implement training beginning with novice concepts and increasing in sophistication to full implementation during student teaching. The ATOP model attempts to reduce the burden of adding intensive training at Tier I, but instead, allowing concepts to be introduced in accordance with teacher development at all tiers. The model offers Pennsylvania teacher education programs direction as they strive to better prepare educators for the trends of tomorrow.

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