A Missing Piece in the K-12 Online Learning Puzzle: Professional Development for Online Teachers

Chad A. Turley
Brigham Young University

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A Missing Piece in the K-12 Online Learning Puzzle:
Professional Development for Online Teachers

Chad A. Turley

A dissertation submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of
Doctor of Philosophy

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ABSTRACT

A Missing Piece in the K-12 Online Learning Puzzle: Professional Development for Online Teachers

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Doctor of Philosophy

K-12 online learning continues to grow, and with it, the need for well-trained online teachers. This multiple-article dissertation explores K–12 online teaching professional development. A literature review describes research trends regarding unique strategies and competencies related to online teaching. It explores strategies such as acting as a facilitator, developing course knowledge, encouraging student engagement, interacting regularly with students, giving feedback, and developing time management skills. The literature review suggests that there is a lack of specific recommendations about what content should be covered and why professional development is beneficial for both teachers and students. Programs that incorporate online teaching professional development specific to their model may have more satisfied and motivated students and teachers.

The second article provides insight into the design process for a K–12 online teaching professional development course that focuses on effectively communicating with online students. The course is designed as a professional development opportunity to enhance teachers’ knowledge of online pedagogy and technology skills unique to communicating in the online environment. The course contains hands-on experiences and activities, allowing teachers the opportunity to learn in the role of teacher and student. The professional development was designed using Desimone’s five core features commonly used for traditional classroom teacher professional development. This article describes the professional development goals, course structure, evaluation process, and preliminary findings. By sharing the development and design of this professional development course the hope is that other K-12 online designers and administrators will have a framework on which to build.

The final article presents the implementation and evaluation results of the professional development course mentioned in article two. This case study shares the learning perspective of 80 teachers that completed the professional development course through pre and post assessments and a course evaluation. Researchers conducted interviews with 11 participants to further explore how the course impacted their pedagogical and technical knowledge in relation to effectively communicating with their online students. Overall, participants reported a satisfactory experience and personal growth in the topics provided. More research is needed on the effects of professional development for online teachers and if it can help lead to student success.

Keywords: online teaching, professional development, interaction, K-12 online learning
ACKNOWLEDGMENTS

A special thank you to all those who inspired me on this journey. To my chair, Dr. Heather Leary, whose guidance, patience, and encouragement helped me reach the finish line. To my amazing committee members, Dr. McDonald, Dr. Davies, and Dr. Borup, thank you for your valuable input and mentoring.

To my loving family, who has never stopped encouraging me. My parents who have always believed in me. My amazing wife, Shelly, who has endured me being in school our entire marriage. My five wonderful children, who always understood when I needed to work on homework and still loved me.

To my fellow educators, who inspired me to be a better teacher, encouraged me to continue learning, and helped me along the way.
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DESCRIPTION OF RESEARCH AGENDA AND STRUCTURE OF DISSERTATION

This dissertation, *A Missing Piece in the K-12 Online Learning Puzzle: Professional Development for Online Teachers*, follows the article format option for dissertations. This format reflects traditional dissertation requirements for submission to the university and conforms with journal publication content, formatting, and length requirements. References used for each article are at the end of each paper.

This dissertation includes three journal-ready articles: a literature review, followed by a design study and case study as briefly described below.

The first article, *K-12 Online Teaching Competencies for Professional Development: A Literature Review*, synthesizes research findings between 2000 and 2019 related to the use of online teaching competencies that could be used in professional development. With the growth of K-12 online learning, online teachers need professional development that will help them learn the needed strategies and competencies unique to the online environment. The competencies examined include acting as facilitator, developing course knowledge, encouraging student engagement, providing regular and timely communication, maintaining a presence, keeping students on pace, giving feedback, increasing technology literacy, and developing time management skills. I propose that online teaching professional development should be regularly reviewed for improvement and be individualized for each program or district.

The second article, *Effective Communication: Developing a Professional Development Course for K-12 Online Teachers*, introduces the design and pilot of a professional development course to help K-12 online teachers learn how to effectively communicate with their students. The course focuses on the pedagogy behind student-teacher interactions, teaches them how to use the tools, and allows them to practice what they have learned through practical activities they
may experience while teaching. The focus of the article is to explain the design process of the professional development course. The 10 teachers that took part in the pilot reported improved knowledge and skills related to communicating with students in the online environment. The professional development course was revised based on participant feedback, and the next step is to implement with a larger group of online teachers. I propose that future studies might look at transfer of knowledge to actual teaching practices after professional development. With the lack of research in K-12 online teacher professional development, it is recommended that professional organizations and university scholars develop an agenda for research, policy, and practice related to K-12 online teacher professional development.

The third article, *Moving From Reactive to Proactive K-12 Online Teaching*, explores the implementation of the professional development course introduced in Article Two with a larger participant group. The case study reports data from the perspective of 80 teachers in pre and post assessments, course evaluation, and participant interviews to complete an overall professional development experience evaluation. The article explores using Desimone’s (2009) five core features used for regular classroom teacher professional development and Kirkpatrick’s (1998) four levels of professional development evaluation normally used in the workplace. Overall, participants reported a satisfactory experience with the professional development course and personal growth in communication skills in the online environment. This case study also reports successful implementation results by teachers after the completion of the professional development. Lack of implementation results is a gap in the literature that needs to be explored more closely. Until more specific online teaching professional development tools are created, researchers should continue to look for ways to adapt and modify regular classroom and workplace evaluation methods for online learning. This study focuses only on instructors, so
future research may benefit from including student measurement to see if professional
development improves student outcomes.
ARTICLE 1

K-12 Online Teaching Competencies for Professional Development:

A Literature Review

Chad A. Turley

Brigham Young University
Abstract

Online course offerings and student enrollments continue to increase on a yearly basis, making online education a viable option for many K-12 students. This growth has increased the demand for online teachers and many educators will be experiencing the online environment for the first time. Many instructors find the online environment requires a new way of thinking and teaching than they are accustomed to in the traditional classroom. As teachers move from in-person instruction to teaching online, the need for professional development is well documented in current literature. Some practices from the traditional classroom may easily transfer, but many of the needed strategies and competencies are unique to online learning. What is missing from the literature is a review of competencies that can be focused on for the professional development of online teachers. This review explores research regarding current competencies needed for teaching online for both new and current online instructors. The competencies examined include acting as facilitator, developing course knowledge, encouraging student engagement, providing regular and timely communication, maintaining a presence, keeping students on pace, giving feedback, increasing technology literacy, and developing time management skills. By incorporating these competencies into their professional development, online institutions will have more successful and satisfied participants, motivated to continue teaching and learning in the online environment.

*Keywords*: online teaching competencies, professional development, online pedagogy
Introduction

Online learning opportunities for K-12 students continue to grow. Both full-time and supplementary U.S. course enrollments are increasing rapidly. For example, enrollments increased from 45,000 students in 2001 to around 4,000,000 students in 2011 (Barbour, 2012). In 2012, it was reported that students across all 50 states now had access to online learning (Kennedy & Archambault, 2012b). Three years later, six states added that students must experience some form of online learning to meet high school graduation requirements (Watson et al., 2015). K-12 online enrollments continue to grow in the United States at a steady rate of around 6% per year as reported in a recent report of online learning (Digital Learning Collaborative, 2019). This same report mentions there were 310,000 students enrolled in 32 statewide online schools and 420,000 students enrolled in almost a million online courses across 23 state virtual schools.

More students learning online has resulted in an increased number of teachers teaching online (Evergreen Education Group, 2015). Researchers have documented teachers need support and professional development to transition successfully from in-person teaching to the online environment (Bryans-Bongey & Graziano, 2016; Davis & Rose, 2007). Providing professional development in online teaching is not a new concept, but research has shown it has not been provided to teachers consistently. A 2007 national survey of K-12 online teachers found that less than 40% of respondents had received any professional development prior to teaching online (Rice & Dawley, 2007). More recently, McAllister and Graham (2016) reported that only nine of 50 states offered online teaching endorsements.

However, there is an absence of specific recommendations in the literature about what content should be included and why professional development is beneficial for both teachers and
students. Professional development programs for online teachers vary in their design and purpose at different institutions. The offerings may range from a series of in-person workshops, a hybrid experience utilizing discussion boards, or extensive learning management system (LMS) professional development that focuses on the teachers creating their own learning modules (Archambault & Larson, 2015). A balanced mixture of both pedagogical and technological competencies is needed for teachers to become effective online educators (Project Tomorrow, 2010). Without a clear understanding about what should be taught to online teachers in professional development, along with why these competencies are important in the online environment, we may never realize the full potential of online education.

This literature review discusses essential teaching competencies necessary for K-12 teachers in the online environment and examines why these competencies are advantageous for online teacher professional development. Findings from this study can help guide the design and implementation of professional development programs and resources for teachers both new and experienced with online learning. This work is guided by the following research questions:

1. What are the essential competencies needed by online teachers?

2. How and why are the essential competencies important for teacher and student success in the online environment?

Definitions and Online Teaching Context

For this review, the term online teaching refers to teaching over the Internet with no scheduled meetings in the physical classroom. In-person teaching means teaching in real time while meeting in a physical classroom.

Online learning has emerged as a viable educational alternative, and many K-12 schools have taken advantage of the flexibility this learning model provides students. This way of
delivering instruction has been gaining increasing acceptance. In 2014, Watson and colleagues reported in *Keeping Pace with K-12 Digital Learning* that a “significant evolution in the landscape” was changing the way schools and school districts were using online learning to help students (p. 4). Many students reported taking supplemental courses online while attending their in-person school. Students were taking online courses for various reasons such as credit recovery and when courses were not available at their school. Others were taking an online course outside of the school day or year to gain flexibility in their school schedule (Watson et al., 2015).

As students make the transition from the in-person classroom to the online environment, they need to develop new skills to be successful and will need to modify past learning interactions to fit the online environment (Allen & Seaman, 2013). While maintaining the usual academic expectations, online students will learn new technology skills, new modes of communication, and the need to increase their levels of self-direction (Allen & Seaman, 2013). Teachers are making a similar transition as research shows that a teacher’s in-person teaching skills do not necessarily transfer to the online environment (Barbour et al., 2013; Ferdig et al., 2009). In the regular classroom, teachers combine their content knowledge and instructional strategies to help them decide which activities, lessons, and assessments to use. Teachers see their students regularly and can address questions in person. Some classroom teachers may use a website or online grading system, but the majority do not consistently communicate with students using technology (Graham-Clay, 2005). However, in the online environment, teachers regularly combine content and instructional knowledge with technology and rely on technology as the primary means of communication.

In 2010, Project Tomorrow surveyed 38,642 teachers and 3,947 school administrators from over one thousand K-12 districts across the United States. The surveys found that 52% of
preservice teachers experienced online classes, and 38% were engaged in online teaching communities, but only 4% said they learned how to teach online classes in their instructional methods courses. The surveys found 26% of administrators said they doubted their teachers' ability to effectively use tools for online classes, suggesting a need to provide educators with more professional development and additional support in online instruction (Project Tomorrow, 2010). More recently Archambault and Larson (2015) surveyed 325 K-12 online teachers finding many teacher preparations programs did not offer online teaching methods or online field placements. Many of the same teachers reported limited online teaching professional development once they started working in the field. In 2016, Zweig and Stafford reported that 75% of 324 surveyed current K-12 online teachers received professional development while already teaching online rather than during preservice education and prior to teaching online. Thus, we see that many online teachers are undertrained.

**Methods**

This section addresses how sources were identified for the literature review explaining the search procedure and inclusion criteria. Next, the analysis procedure is discussed that was used to identify and code competencies from the sources.

**Search Procedure and Inclusion Criteria**

Literature was located using the ERIC, SCOPUS, and PsychINFO databases. The following keywords and combinations were used to search the databases: online teaching skills, online pedagogy, professional development, online teaching AND professional development, distance learning teaching skills AND online teaching skills, and online learning. This initial search produced over 1,400 articles. Due to the high return, the following criteria were included to narrow the search:
Conducted between the years 2000-2019.

Focus must be on K-12 setting.

Online teaching competencies must be discussed.

A discussion on why the competency was important to teacher and student success.

Book chapters, white papers, and peer-reviewed journal articles were included in this review.

Search Results

Using the search terms and criteria produced several articles related to K-12 online teaching. The limited number of peer-reviewed articles around online teaching competencies is evidence of the need for increased research in this area. To broaden the search, the bibliographies of relevant articles were also examined. Then, pedagogical and administrative skills were also included in the search criteria. These criteria were added as the results in a recent literature review found these competencies to be the two most identified global themes across related literature (Pulham & Graham, 2018). This decreased the number to 18 documents relevant to K-12 online competencies to be used in this literature review. Table 1 lists the document information, a short description, and methodology.
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<td>Archambault, L. (2011). The practitioner’s perspective on teacher education: Preparing for the K-12 online classroom. <em>Journal of Technology and Teacher Education, 19</em>(1), 73-91.</td>
<td>Article describes results from a survey of 596 K-12 online teachers, including how prepared they are to teach online. The survey identifies competencies under the following domains: (a) pedagogical knowledge, (b) technological knowledge, and (c) content knowledge.</td>
<td>Quantitative (survey)-describes validity and reliability process. No further methods discussed.</td>
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<td>Barbour, M. K., Siko, J. P., Gross, E., &amp; Waddell, K. (2013). Virtually unprepared: Examining the preparation of K–12 online teachers. In R. Hartshorne, T. L. Heafner, &amp; T.M. Petty (Eds.), <em>Teacher education programs and online learning tools: Innovations in teacher preparation</em>, (pp. 60–81). Information Science Reference.</td>
<td>A book chapter examining the differences of face-to-face teaching and some needed skills of an online teacher. These skills were identified from existing teacher professional development. A list of online teaching competencies was not included.</td>
<td>No methods discussed.</td>
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| DiPietro, M., Ferdig, R. E., Black, E. W., & Preston, M. (2008). *Best practices in teaching K-12 online: Lessons learned from Michigan Virtual School teachers*. *Journal of Interactive Online Learning, 7*(1), 10-35. | Research study conducted interviews with 16 online teachers from Michigan Virtual School. The interviews identified 37 online teaching strategies grouped into four areas: (a) general, (b) management, (c) pedagogical, and (d) technology. | Qualitative (interviews)  
Data coding  
Constant comparative coding analysis  
Theoretical sampling  
Data synthesis |
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<td>Kennedy, K. &amp; Archambault, L. M. (2012a). Design and development of field experiences in K–12 online learning environments. <em>Journal of Applied Instructional Design</em>, 2(1), 35–49.</td>
<td>This article offers guidance to how field experience might be designed to include K-12 online teaching experiences. The standards from iNACOL (2011), NEA (2006), and SREB (2006) are organized into 13 categories as a cross reference of online teaching knowledge and skills.</td>
<td>Listing of standards, no validation other than they are from professional organizations.</td>
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<td>McAllister, L., &amp; Graham, C. R. (2016). An analysis of the curriculum requirements for all online k-12 teaching endorsements in the U.S. <em>Journal of Online Learning Research</em>, 2(3), 247–282.</td>
<td>This study examined K-12 online teacher preparation programs, specifically online teaching endorsements. The analysis found six global themes related to online teaching competencies.</td>
<td>Content analysis approach&lt;br&gt;Data coding&lt;br&gt;Constant comparative coding analysis&lt;br&gt;Pear debriefing&lt;br&gt;Inter-rater reliability</td>
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<td>Murphy, E., &amp; Rodríguez-Manzanares, M. A. (2009). Teachers’ perspectives on motivation in high-school distance education. <em>International Journal of E-Learning &amp; Distance Education, 23</em>(3), 1–24.</td>
<td>Article focused on student motivation in distance education interviews 42 high school teachers asking how they motivate students. The interviews identified 16 best practices for online teachers grouped under three main categories: (a) communication, interaction, and social presence, (b) intrinsic and extrinsic motivators, and (c) learner-centered designs.</td>
<td>Qualitative (interviews) Data coding Constant comparative coding analysis</td>
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<td>Rice, K., &amp; Dawley, L. (2007, November). Going virtual! The status of...</td>
<td>Article describing results from a survey of 259 K-12 online teachers, focusing on professional development needs. The survey results identify 26 online teacher competencies.</td>
<td>Quantitative (survey)</td>
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<td>Rice, K., Dawley, L., Gasell, C, &amp; Flores, C. (2008). Going virtual!...</td>
<td>Second phase of “Going virtual!” reports. Survey items were mapped to the NACOL standards and distributed to 884 K-12 online teachers. The survey contains online teaching competencies related to eight categories.</td>
<td>Mixed method (survey)</td>
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<td>Southern Regional Education Board (2006). Standards for quality online...</td>
<td>A report that lists 11 K-12 online teaching standards, within three categories: (a) academic preparation, (b) content knowledge, skills and temperament for instructional technology, and (c) online teaching and learning methodology, management, knowledge, skills, and delivery.</td>
<td>Expert opinion collaboration</td>
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<td>Zweig, J. S., &amp; Stafford, E. T. (2016). Training for online teachers to support student success: Themes from a survey administered to teachers in four online learning programs. Journal of Online Learning Research, 2(4), 399-418.</td>
<td>An article describing results from 188 K-12 online teachers, including professional development needs. A list of nine common online teaching competencies are identified.</td>
<td>Quantitative (survey) Items based on previous surveys, with changes made not clear</td>
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Many articles are reports or white papers (Burns, 2011; iNACOL, 2011; National Education Association [NEA], 2006; Rice & Dawley, 2007; Rice et al., 2008; Southern Regional Education Board [SREB], 2006; Virtual Learning Leadership Alliance [VLLA] & Quality Matters, 2019) and one is a book chapter (Barbour et al., 2013). One is a published literature review (Pulham & Graham, 2018).

**Literature Analysis**

The author used constant comparative coding analysis (Birks & Mills, 2011) in the review of the 20 documents. The author read and reviewed the documents, looking for recurring themes that appeared throughout the papers. When themes were identified, a grouping was made where related and similar concepts were put under the theme that best described them. In this study, first all the identified codes were defined; they were then classified under the same concept to form the research concepts.

Due to the literature not using a common term to describe online teaching competencies, the author searched for terms related to online teaching competencies, such as, standards, skills, best practices, and strategies.

**Findings**

Findings of the literature review research questions are discussed here:

1. What are the essential competencies needed by online teachers?

2. How and why are the essential competencies important for teacher and student success in the online environment?

**Recurring Online Teaching Competencies**

The results of the analysis identified the highest referenced competency dimensions as pedagogical and administrative. Under the dimension of pedagogical, the highest identified
components were course knowledge, student encouragement, teacher presence, and teacher facilitation. Under the dimension of administrative, student pacing, technology knowledge, student feedback, student interaction, and time management were identified as the highest referenced components. These dimensions and components somewhat connected with another recent literature review of online teaching competencies (Pulham & Graham, 2018) and research exploring online teaching endorsement curriculum objectives (McAllister & Graham, 2016).

**Pedagogical Competencies**

Pedagogy has been defined as “a science that makes educators aware of different teaching and learning standards and strategies which guide what, to whom, how and when to teach” (Brunner, 1999, as cited in Serdyukov, 2015, p. 61). A teacher’s competence to effectively engage and efficiently teach students does not rely solely on subject matter expertise but also includes pedagogic skills. Teachers develop these competencies through a series of experiences including teacher preparation, teaching practice, and professional development (McAllister & Graham, 2016; Serdyukov, 2015). Without including pedagogical practice in online teacher professional development, instructors tend to rely on traditional pedagogies instead of transforming their practice to the online environment (Archambault, 2011; Barbour et al., 2013; Davis et al., 2007). It is not enough to be an excellent in-person teacher, as there is a learning curve for teachers making the transition to online teaching (Graziano & Bryans-Bongey, 2018).

**Role of Online Facilitator**

A significant challenge that teachers experience in the online environment is the role transition from the student’s source of all knowledge to a guide that acts more as a facilitator (Archambault & Larsen, 2015; Kennedy & Archambault, 2012a; Murphy & Rodriguez-
Manzanares, 2009). Online teachers are learning to modify their instructional practices and pedagogy as they move from a traditional teacher-centered model to a more student-centered model (Archambault & Larsen, 2015; iNACOL, 2011; SREB, 2006). Online teachers must have more than content and technical knowledge; they need to learn effective ways of engaging, guiding, and motivating learners (SREB, 2006; VLLA & Quality Matters, 2019). To successfully facilitate student learning, online teachers need to understand learning as well as teaching (Kennedy & Archambault, 2012a; SREB, 2006). Teachers who are proactively involved in their own learning process will be better equipped to understand learning from the student perspective (iNACOL, 2011; SREB, 2006).

In a national survey, Rice and colleagues (2008) asked 884 K-12 online teachers to rate the importance of professional development topics. In the second highest ranked category, 80% of teachers rated facilitation skills as very important to online teaching. The highest rated facilitation topics included enabling student independence, autonomy, and responsibility for mastery. In 2016, another survey was administered to 186 K-12 online teachers across Iowa and Wisconsin, who were supporting almost 25,000 online enrollments (Zweig & Stafford, 2016). Teachers were asked what practice areas were covered during their professional development. Online facilitation skills were mentioned by 86% of those surveyed, with over 75% of participants mentioning they would benefit from more professional development in this area.

Murphy and Rodriguez-Manzanares (2009) interviewed 13 Canadian K-12 online teachers to discuss what differences they experienced from in-person and online teaching. A teacher provided the following quote:

I’ve become more a facilitator. I don’t teach [students] anymore. . . . They take control of what they do . . . I provide the tools . . . In the first year or two that I taught, I taught like I
would in a face-to-face classroom, a lecture [but] I’ve adapted my role as a teacher . . .

When I moved to teaching online, I still retained a percentage of the old, sage on the stage model of teaching. That is changing. (Murphy & Rodriguez-Manzanares, 2009, p. 8)

Just as the in-person teacher manages learning activities and discussion, so does the online teacher. However, the online teacher has some unique challenges; the teacher and students often have never met, communication can be void of visual clues due to asynchronous methods and keeping track of individual students scattered across the world can be challenging (Archambault & Larsen, 2015; DiPietro et al., 2008). This makes the role of the online teacher both special and crucial for effective learning outcomes and successful learning experiences.

**Course Knowledge**

According to current online teachers surveyed in multiple studies, a teacher’s knowledge of their course content and structure is required to create a satisfying learning experience for the online student (Archambault & Larson, 2015; DiPietro et al., 2008). An online teacher should possess an understanding of their content area, along with the ability to help learners engage with and develop an understanding of the subject (Archambault & Larson, 2015). Valid, and up-to-date knowledge is not only advantageous for the learner, but it will help the online teacher establish a solid reputation and build trust with students as a good online instructor (Burns, 2011). This knowledge allows the online teacher the ability to provide guidance, answer questions quickly, and help get students back on track when needed.

The online teacher should also thoroughly know the course they are teaching, including the content, course structure, assessment questions, resources, and possible technical glitches (Borup et al., 2014). This activity should happen whether the current teacher created the course,
or another person created it. As students begin asking questions, the teacher will be better prepared to assist student questions and concerns having spent time getting to know the course (Murphy & Rodriguez-Manzanares, 2009).

**Encouraging Active Student Engagement**

There are quite a few different definitions of student engagement in the literature, so for the purpose of this review we will refer to Clark and Mayer (2016) who say that engagement is “the meaningful psychological interaction between the learner and the instructional environment that promotes the achievement of the learning goal” (p. 222). All course content, such as assignments, lessons, and discussion boards, should support the course learning objectives. Excellent online teachers use real world assignments, relevant examples, and participate in thought-provoking discussions to motivate students to want to learn more about the content (Zweig & Stafford, 2016). In these ways, the online student will better connect with the course content and the teacher.

The online teacher can ensure a higher level of student interaction and participation through class discussion, a reflective learning style, and regular student-teacher communication (Zweig & Stafford, 2016). Using online messaging, video conferencing, discussion forums, and chat tools, an online student can foster greater student engagement with peers, course content, and the online teacher (Archambault & Larsen, 2015). Instead of the student having to read through the course syllabus, the online teacher could create an introductory video that covers course expectations, assignment requirements, and talk about his or her teaching philosophy (Borup et al., 2012; iNACOL, 2011; VLLA & Quality Matters, 2019).

Multiple online teaching standards (iNACOL, 2011; SREB, 2006; VLLA & Quality Matters, 2019), suggest creating a community of learners in their review of online learning best
practices. In this way, learners can engage in quality interactions with their peers and their
teacher, fostering student engagement. DiPietro et al. (2008) argues that feeling a personal
connection to their teacher, peers, and subject can be the most essential factor to success in an
online educational experience. With online students often needing more self-regulation and self-
discipline, this type of engagement is important.

**Teacher Presence**

In the in-person classroom, students and teacher meet in the same physical space.
Students can see and hear the teacher and will form perceptions about the teacher’s organization,
teaching style, and personality. In the online learning environment, the students and teacher both
use the online classroom, but usually at different times. From the student perspective, if the
online teacher has been absent for long periods of time, the student may perceive that the teacher
is not concerned about teaching and learning (Archambault & Larsen, 2015). This can lead to a
student feeling alone, which McInnerney and Roberts (2004) noted that participant attrition rates
are often negative due in large part to the feeling of isolation.

Murphy and Rodriguez-Manzanares (2009) suggested that online teachers must be seen
to be perceived as present in online learning communities. Blignaut and Trollip (2003) believed
presence requires action in the online environment. Teachers can begin to develop presence early
in the course beginnings by creating a video introduction to share personal and professional
information about themselves. The video should reflect the personality of the teacher to allow the
students to get to know them better.

Just as in the in-person classroom, the online environment has certain behavioral
expectations. However, the online environment is unique in that students and teacher are
interacting at a distance and rarely interact in-person with each other as a class. Online teaching
standards recommend online teachers include protocol and netiquette statements in their syllabus to give students guidelines for how they should interact with the course and others (iNACOL, 2011; SREB, 2006; VLLA & Quality Matters, 2019). This can provide students with a comfort level and support knowing expectations and allows them to approach the course with certainty and confidence (Ko & Rosen, 2001).

Instructor presence should continue during the course, as the teacher facilitates discussions and provides direct instruction when warranted (Archambault & Larsen, 2015). Some suggested presence strategies during the course include the teacher commenting in a timely fashion to discussion forums so students know they are reading and responding to their thoughts (iNACOL, 2011; SREB, 2006; VLLA & Quality Matters, 2019). Sending email and posting weekly announcements to individuals and groups of students, recognizing student effort, and providing course reminders and tips to be successful in the class can exhibit presence (Motte, 2013). Teachers may also offer office hours where students can visit virtually to ask questions or seek guidance in real time (Motte, 2013).

The research regarding teacher presence has had mixed results. More recently, those researching K-12 online learning report higher levels of teacher involvement in online courses can lead to improved student motivation (Murphy & Rodríguez-Manzanares, 2009), higher completion rates (Hawkins et al., 2013), and increased sense of presence (Borup et al., 2014). Further research is needed on teacher presence to substantiate its importance in online learning environments and its effects on student academic success.

**Administrative Skills**

Whether teaching in-person or online, effective classroom management is key to student success and teacher happiness. When teaching online, teachers must learn to alter many of the
classroom management strategies they have become accustomed to. Students are no longer contained in a single room and teachers need to be intentional about expectations and how students can succeed. Online students may progress at different paces, and it is important for online teachers to know how to motivate and encourage students (DiPietro et al., 2008). Online teachers need specific technology skills to support their students (Ferdig et al., 2009). Being present through regular feedback and communication can help establish connections between teacher and students (Davis & Rose, 2007). Online teachers that create routines and expectations up front, can save themselves and students from frustrating situations (Magnussen, 2008).

**Keeping Students on Pace**

Online students are not any different than in-person students in their need for encouragement. Online learners need to be motivated and encouraged at the right time and the right place to keep them learning (Archambault & Larsen, 2015; DiPietro et al., 2008). It is important for instructors to monitor and guide students from the first day toward successful course completion.

Murphy and Rodríguez-Manzanares (2009) suggested online teachers should be aware that course structure and procedures can have a direct effect on student motivation to make sufficient progress. Online teachers have reported that online students are more prone to procrastination (Archambault & Crippen, 2009; DiPietro et al., 2008). In a higher education study related to procrastination, Steel (2007) found that procrastination can lead to self-regulation failure, which is imperative in online learning. Steel mentions that the number of choices a student must make while completing a task is one factor that can lead to procrastination. Including firm due dates for assignments, along with teacher checkpoints, can help reduce a student’s poor choice related to postponing assignment completion (DiPietro et al.,
2008; Weiner, 2003). When a student completes tasks at the last minute, it can lower the quality of both the learning experience and grade for the assignment.

The sequencing of assignments and the course pace may help increase student self-regulation effort (Archambault & Larsen, 2015; DiPietro et al., 2008; iNACOL, 2011). Alternating between less difficult and more difficult assignments is a strategy that can affect student effort (Dunlap et al., 2007). In a mental arithmetic task experiment, Wright et al. (2003) found that if the initial task was deemed difficult, the participants exerted less effort in the next task. The control group participants that had received an initial less difficult task did not display effort depletion. Giving students sufficient time to allow recovery from rigorous assignments before the next difficult one may encourage a more consistent effort from the student throughout the course (Wright et al., 2003).

Song et al. (2004) found in a study of 76 online graduate students that providing encouragement and support, particularly early in the course, can lead to higher rates of course satisfaction. Providing students with sufficient orientation to course expectations, instructional methods and technology can get them started in a positive way (Roblyer, 2006). This can be accomplished by sending a welcome email prior to the start of class or including a brief orientation module for students to become familiar with tools used in the course. Providing teacher contact information and technical support in a variety of places can help remind students they can receive help when needed. Getting students started successfully should then continue with encouragement from the teacher throughout the course.

Throughout the online course experience, the online teacher should monitor student progress, identify struggling students, and encourage them to minimize their procrastination (iNACOL, 2011; SREB, 2006; VLLA & Quality Matters, 2019). Most LMS will have tools to
track student progress in course activities. Teachers should contact students who have not logged into the course for over a week to find out if they can help the student. Hawkins et al. (2013) encourage online teachers to begin contacting students on the first day of class, as students may be more motivated for engagement earlier in the process.

**Technology Literacy**

In-person teachers can lack technology skills and still teach effectively, however, online teachers must have a solid understanding of technology due to the uniqueness of the online learning environment (Archambault & Larsen, 2015; Ferdig et al., 2009; VLLA & Quality Matters, 2019). Many online students will not have the technology skills needed for an online course, which can cause frustration and lead to the student wanting to drop out of the course (de la Varre et al. 2014). It is important to train teachers to know where they can find support if they cannot solve the issue (Ferdig et al., 2009; Kennedy & Archambault, 2012a). Students will recognize when a teacher is making an effort to find help, and this can develop trust and a positive learning community.

International Association for K-12 Online Learning (2011) stated in its National Standards for Quality Online Teaching, that online teachers should understand and “be able to use a range of technologies, both existing and emerging, that effectively support student learning and engagement in the online environment” (p. 5). Basic technical literacy such as manipulating documents, managing files and folders and, working in multiple windows are key skills for teaching online (iNACOL, 2011; NEA, 2006; Savery, 2005; SREB, 2006). Conversations with students and parents will take place through email, chat, and video conferencing, so skills for using these communication technologies become essential. The online teacher should have basic troubleshooting skills related to online learning and refer students to technical support when
necessary (Archambault & Larsen, 2015; Ferdig et al., 2009; VLLA & Quality Matters, 2019).

Finally, an online teacher should model and monitor copyright privileges, netiquette, and generally accepted online use policies (Davis & Rose, 2007; iNACOL, 2011; SREB, 2006; VLLA & Quality Matters, 2019).

Online teachers will spend most of their time teaching in a learning management system (LMS). The focus of an LMS is to manage and deliver all the learning content to the student in an organized manner. In 2015, Archambault and Larsen surveyed 252 current K-12 online teachers, asking them what professional development opportunities would best serve new online teachers. The highest response related to the importance of being comfortable with the LMS that was adopted by their institution. Multiple online teaching standards recommend that online teachers know how their course is structured in the LMS and where and how students are accessing material (NEA, 2006; SREB, 2006). Many LMS features, such as a virtual classroom, assignment calendar, student performance records, and a gradebook can benefit learners and teachers. Online teachers will need to know what features exist and be properly trained on those features (McAllister & Graham, 2016). Proper LMS professional development will allow teachers better time management by simplifying their administrative tasks, communication, grading and tracking students all to one location (Baghdadi, 2011).

**Online Feedback**

Research on teacher-student instructional interactions has increased the focus on the importance of feedback on student success. There is high potential for students to feel isolated in the online environment from lack of communication and teacher feedback (Weiner, 2003). Multiple online teaching standards recommend frequent and prompt feedback to students (iNACOL, 2011; NEA, 2006; SREB, 2006; VLLA & Quality Matters, 2019). Furthermore,
researchers have identified online teaching best practices that include prompt feedback on student assignments, communication, and progress (Archambault & Larsen, 2015; DiPietro et al, 2008; Kennedy & Archambault, 2012b; Murphy & Rodriguez-Manzanares, 2009). However, these studies were based on teacher perceptions or standards analysis and did not tie student feedback to student performance.

Researchers have found that timely and frequent online feedback can contribute to student learning and can have a positive effect on learner performance in higher educational settings (Goldsmith, 2014; Thiele, 2003). In a study involving 397 students, Eom et al. (2006) identified several factors essential to student satisfaction, which highlighted students wanted frequent teacher feedback. Using effective feedback strategies can allow the teacher to target individual student needs as well as encourage student participation at a high-quality level. In the past decade, research has increased the volume of evidence related to online teaching and feedback. In a study of 40 undergraduate and graduate faculty, Lewis and Abdul-Hamid (2006) asked what effective practices for online educators were and found feedback as the common response. Effective feedback can act as an intervention in the online environment as it can help enhance academic performance and student-teacher relationships (Bonnel & Boehm, 2011). Bigatel and colleagues (2012) proposed several online teaching competencies as important practices, which included providing frequent, specific, and prompt feedback.

Most online teachers will be concerned that providing feedback can be a tedious and time-consuming task. Peer feedback can allow students to become active members of an online learning community, providing feedback on discussion boards and group work. This can help students acquire critical thinking, self-reflection, and peer review skills (Bonnel, 2008). Frequently used feedback comments can be assembled in the LMS feedback banks or in a
document for easy cut and paste access. This can allow the teacher the ability to thoughtfully construct specific, helpful feedback for common issues and successes in assignments (Lewis & Abdul-Hamid, 2006). With the use of technology, online teachers can provide recorded audio, video, and even synchronous web conferencing feedback. Multiple studies have determined these types of feedback provided better clarity, individualized instructions, was motivating, and easier to retain than written feedback (Bigatel et al., 2012; Lewis & Abdul-Hamid, 2006).

**Communication**

A key component of online instruction is good communication practices. Responding to students in a timely manner is essential to building good teacher-student relationships. It is a best practice to communicate the parameters for instructor response time (24-36 hours, for example) in the syllabus so students know when they will receive a response (Baghdadi, 2011). Online students often have limited windows of opportunity during which they can devote time and energy to coursework. A question that goes unanswered, and is needed to progress in the course, can be frustrating for students as opportunities to work pass by while waiting for a key piece of information. Online learners tend to be active in courses over weekends and holidays, so teachers may wish to check communication methods often during this time frame.

The amount and type of interaction and communication required in an online course will vary, depending on the type of course, the instructor, and the course format. There are many different tools for an online teacher to use to communicate with students. Online classes generally provide two ways to communicate: asynchronous and synchronous. Asynchronous communication tools allow teachers to interact with students at different times, with not everyone having to be online at the same time. Asynchronous tools might include email, discussion boards, course announcements, and recorded feedback. Synchronous communication
tools allow teachers to interact with students in real time. Synchronous tools might include chat, a virtual classroom, and phone calls. Davis and Rose (2007) suggested online teachers should efficiently use both formats to develop relationships and establish lines of communication with students.

In the online environment, neither the student nor the instructor has the visual cues used in in-person communication (Leibold & Schwarz, 2015). Students will utilize available cues to assess many items, such as how they are doing in the class, defining a relationship with the teacher, and evaluating the climate of the online course. In many online courses students are limited to interpreting written communications, which does not have the benefits of voice cues or body language. Therefore, how the teacher scripts written feedback, as well as comments, and the tone of those communications is important (Collison et al., 2000).

Lewis and Abdul-Hamid (2006) recommended that the online teacher must develop and exhibit an online voice, that sets the tone for the online course, so that their students will seek to find their own online voice. This will lead to students contributing to the learning environment by feeling comfortable interacting with others in the course (Lewis & Abdul-Hamid, 2006). The teacher can set a positive tone by using first names when addressing students, which establishes a personal connection (Arbaugh, 2010). Teachers need to watch for unintentional attitude in their communications, such as sounding impatient and not supportive (Arbaugh, 2010). It is recommended that private email be used for sensitive communications, such as criticism and comments on individual student issues (Savery, 2005).

**Time Management**

Many teachers are attracted to teaching online, thinking the workload will be less, so that they can work in their pajamas when and where they want to (Conrad, 2004). However, many
teachers quickly find out the time investment for teaching online is equal or greater to in-person teaching (Pachnowski & Jurczyk, 2003). The National Education Association concluded as much in their report of a survey of over 500 faculty members of two- and four-year institutions. The survey found 53% of faculty reported they spent more hours per week preparing and delivering their distance learning course than they did for a comparable traditional course (NEA, 2000). If online education is to continue to grow, teachers will need to develop effective time management strategies.

Magnussen (2008) recommended online teachers should establish routines, stick to them, and make sure their students understand expectations about them. Some teachers dedicate certain days to grade and certain days to answer email (Dykman & Davis, 2008). Other teachers create and utilize a discussion board for student questions, where they must look to peers for easy answers prior to contacting the teacher (Pelz, 2004). Another tip is to establish virtual office hours where students can receive real time answers (Edwards & Helvie, 2010).

Some time management strategies take a larger time investment up front but will save time in the end (Li & Irby, 2008). Self-check online assessments that can be created to provide students with immediate feedback and even provide information where to find a help resource when they get the question wrong. Gallien and Oomen-Earley (2008) recommended creating a frequently asked questions document where teachers can direct students with common questions. Also, to be considered, is creating clear and concise rubrics for assignments, which will save the teacher time, answer assignment questions, and reduce the amount of time spent evaluating assignments (Pelz, 2004).
**Discussion**

This literature review examines the literature related to K-12 online teaching competencies and how and why they are important for online learning success. As other researchers have concluded, this review discusses how many of the online teaching competencies are unique to the online environment (Allen & Seaman, 2013; Barbour et al., 2013; Ferdig et al., 2009).

Many of the online teaching competency standards and lists are based on expert opinion collaboration (iNACOL, 2011; NEA, 2006; SREB, 2006; VLLA & Quality Matters 2019) with no validation or examination behind them. Some of the articles provided little to no methodology (Barbour et al., 2013; Burns, 2011; Rice & Dawley, 2007) and others were created using previously created frameworks and competencies (Ferdig et al., 2009; Kennedy & Archambault, 2012a). However, some of the documents used in this literature review did use constant comparative coding analysis to develop themes in interviews (DiPietro et al., 2008), to review commonly discussed online teaching competencies in the literature (Pulham & Graham, 2018), and examine online teaching endorsements curriculum (McAllister & Graham, 2016). These three articles had the most transparent methodology explanations.

With many articles about K-12 online teaching competencies not being published in peer-reviewed outlets and many articles based on expert opinion, there appears to be a need for more future research built on teaching experiences, interviews, and survey data. Future research should be more rigorous and provide clearer research methodology. This highlights the need for partnerships between researchers and practitioners to hopefully lead to more collaborative and research-based studies. More studies should explore developing and validating new and emerging K-12 online teaching competencies (Darabi et al., 2006; Foulger et al., 2017).
Conclusions and Future Study

Within the educational realm, online learning is still a relatively new concept. Additional research opportunities are available for almost all aspects of online education. This review has validated that researchers agree that online learning requires a different skill set than that required in the regular classroom. The research gap discovered by this review shows few studies exist that outline the combined skills needed to adequately address the professional development of new and current online teachers. What is not agreed upon are validated, empirically based online teaching best practices.

More research of online teaching competencies at the implementation level in schools or programs are needed to validate existing competencies (Barbour et al., 2013). Practitioners and researchers must continue to explore new competencies as technology changes update the learning experience for online students. Teachers, schools, and programs can provide examples to inform future efforts in student satisfaction and success. Future research to further examine K-12 online teaching standards and competencies can help future, new, and current online teachers to thrive in this unique environment.

To help both teachers and students succeed online, and to provide quality instruction, teachers must know how to foster student learning in this unique environment. As research in this review documents, online teachers often feel uneasy and unprepared about making transitions from the in-person classroom to online learning. This review discusses a set of best practice skills that could be used for online teacher professional development.

As online course offerings rise and higher numbers of students continue to choose this learning format, it is important to train teachers in online learning competencies. Professional development should be designed, implemented, and reviewed for strengths, weaknesses, and
gaps. More studies based on professional development for online teachers should be conducted and data analyzed for effectiveness. Future research should explore continuous improvement areas needed for teachers as they develop online teaching skills through their experiences in online learning. It is the recommendation of this researcher for institutions offering online learning to review their current professional development offerings for online teachers. If there is an absence of professional development for teachers prior to teaching online, it must be established for the benefit of both the student and the teacher.
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ARTICLE 2

Effective Communication: Developing a Professional Development Course for K-12 Online Teachers

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Abstract

With the increase in online learning comes the need for quality professional development opportunities that encourage the development of online teaching skills. This paper introduces the design of a professional development course on teaching in an online learning environment that targets K-12 teachers. *Effectively Communicating With Your Online Students* is a course designed as a professional development opportunity to enhance teachers’ interaction with their students. The focus of the course is to assist K-12 teachers in developing the skills needed to effectively communicate with students by first learning the pedagogy behind the interaction and then how to use the tools. Through interactive experiences and practical activities, participants are expected to develop the ability to effectively integrate a variety of strategies and tools into an online learning experience. The results of an initial evaluation of the course are described.

*Keywords*: online teaching, professional development, instructional design, interaction
Introduction

Online learning in K-12 education has grown substantially over the past two decades. Enrollments are steadily growing at about 6% per year in U.S. statewide online schools with almost a million online enrollments (Digital Learning Collaborative, 2019). Many students and families are choosing online courses as a flexible and creative alternative to in-person classes. According to a national survey in 2015, 43% of high school students chose an online course to work at their own pace and 47% reported taking an online course that was not offered at their school (Gemin et al., 2015). With nearly all school districts across the nation providing some form of online education (Archambault et al., 2016), this suggests a high demand for quality K-12 teachers who are proficient in online teaching skills.

Research suggests online teaching requires different skills than in-person teaching (Barbour, 2014). For teachers to become effective in the online environment, there is a learning curve with these new emphasized skills, and it is not enough to be an excellent in-person teacher (Graziano & Bryans-Bongey, 2018). More than a decade ago, the National Education Association reported that most teacher preparation programs in colleges of education did not prepare teachers to teach online (Duncan & Barnett, 2009). Unfortunately, more recent research continues to show that preservice teacher education is lacking online teaching coursework and online field placements (Archambault & Larson, 2015; McAllister & Graham, 2016). Current K-12 online teachers also report receiving professional development while already teaching rather than during preservice experiences (Zweig & Stafford, 2016).

With limited teacher preparation programs addressing online teaching techniques, many K-12 online teachers are lacking necessary online pedagogical and technical understandings (Archambault & Larson, 2015). As a result, it is important that colleges of education and online
schools and programs ensure that their online teachers can teach and communicate effectively. A possible approach for additional professional development might include online courses, in-person seminars, webinars, or as simple as a single online module or unit devoted to practical online teaching components (Archambault & Larson, 2015). These suggested forms of professional development offer a feasible starting point to help online teachers acclimate and improve in the online environment. Professional development opportunities and support are essential for online teachers during this evolution in the landscape in K-12 education (Watson et al., 2014). The purpose of this paper is to introduce the design of a professional development course to provide online teachers with the basic skills to effectively communicate with online students. In documenting the design and development of the course, those implementing their own professional development course will have a framework on which they can build.

**Literature Review**

**Online Learning**

The term online learning has been used by authors and scholars in many ways (Singh & Thurman, 2019). There are distinct and overlapping terms that refer to online learning, such as distance learning, e-learning, virtual learning, and online courses (Singh & Thurman, 2019). Online learning may be delivered synchronously, using tools such as chat or virtual online classrooms or asynchronously, using email and discussion boards. Scholars may use these terms interchangeably at times, but these terms do not have commonly understood definitions. For the professional development course proposed in this document, online learning is defined as:

Learning experienced through internet in an asynchronous environment where students engage with instructors and fellow students at a time of their convenience and do not need to be co-present online or in a physical space. (Singh & Thurman, 2019, p. 302)
Teachers can play an integral part in helping students be successful online learners, but they often do not have the specific skills needed to make the transition from the traditional classroom (DiPietro et al., 2008). Teachers may have limited experiences as online students themselves and have been mostly educated in a traditional in-person environment (Roy & Boboc, 2016). Online learning requires different skills in pedagogy, interaction, and student pacing to be successful (Barbour, 2014). There are different models of online learning, such as synchronous and asynchronous approaches. Teachers need to receive professional development in the medium of the online instructional model used where they teach (Zweig & Stafford, 2016). For example, different strategies are necessary to engage students in an asynchronous course (Watson, 2007). Even further, different instructional strategies are required in an asynchronous cohort-based course than an asynchronous independent study course.

In an asynchronous independent study course, teachers use specific tools and approaches to reach students at a distance. Teachers may use discussion boards, email, and videos to stay connected with students. Additional time and patience may be required of the teacher as students are not scheduled to meet regularly as in the regular classroom. Time management skills are critical for teachers as students can be online at any time (Zweig & Stafford, 2016). Asynchronous courses may contain new modes of assessments that record the students and helps verify and monitor the student being assessed. Other courses may require students and teachers to communicate using recorded videos. It is important that teachers receive professional development that uses the same online tools they will teach with.

Online teaching professional development elements may be grouped into two categories, technology, and pedagogy (Southern Regional Education Board [SREB], 2006). The first, learning the technology and tools used in the online course. This may include the learning
management system (LMS), email, Office applications, screen recording software, and basic computer skills. The second element, online pedagogy, can be much more complex. As an example, consider the contrast in knowing how to post a response to a discussion board (technology knowledge), versus effectively utilizing a discussion board to engage in a class discussion (online pedagogy knowledge). Professional development in online pedagogy may include helping teachers understand how to provide timely and meaningful feedback, keeping students interested and motivated to learn, enhancing student interaction, and encouraging students to be critical and reflective (Kearsley & Blomeyer, 2004).

**Professional Development**

With the increase in K-12 online learning, there is a need for quality professional development opportunities that focus on developing best practices (Rice & Dawley, 2009). Research has reported that preparation for online teaching across the United States is lacking in pre-service teacher programs (Archambault & Larson, 2015; Kennedy & Archambault, 2012; McAllister & Graham, 2016). Many school administrators doubt their teachers’ ability to effectively teach online (McAllister & Graham, 2016). Current K-12 online teachers report receiving professional development while teaching online rather than before teaching online (Dawley et al., 2010; Zweig & Stafford, 2016). Lack of online teacher professional development opportunities has resulted in many undertrained online teachers and has left others that received little to no professional development searching to find their own (Rice & Dawley, 2007).

While online learning growth and lack of online teacher professional development opportunities create issues for teachers and students, the differing K-12 online learning models used across the U.S. also complicates the matter. Some K-12 teachers work full-time in an in-person public or charter school and teach part-time in a different supplemental online program
(Rice & Dawley, 2009). Others teach online full-time or part-time in a virtual school, state-led, district-led, or charter school (Gemin et al., 2015). With vastly different opportunities to teach online, it becomes important to differentiate professional development according to need, model, role, and context.

Just as there are many ways to teach online, there are many ways to provide professional development to online teachers. Professional development can be offered through webinars, in-person workshops, mentoring, online modules, or boot camps. These professional development opportunities can occur synchronously or asynchronously, either in a cohort-based or independent study model. Some researchers recommend professional development that is standardized and regularly scheduled, while others support individualized and just-in-time opportunities (Archambault & Larson, 2015; Dawley et al., 2010; Roy & Boboc, 2016).

Higher education institutions still tend to offer traditional professional development activities for online faculty (Meyer & Murrell, 2014). In a study of 39 higher education institutions, it was reported that workshops, one-on-one training, and short sessions were used much more frequently than online modules (Meyer & Murrell, 2014). Limited studies in post-secondary settings discuss modeling online teaching best practices through the delivery of online professional development. For instance, Rienties et al. (2013) found 33 faculty members increased their online teaching confidence and demonstrated increases in their Technological Pedagogical and Content Knowledge (TPACK) following completion of online professional development modules. In another study Ginzburg et al. (2010) reported increased teaching confidence and increased understanding of online learning from a student perspective.

As technologies continue to develop, there is little research about the effectiveness and preference of online professional development for K-12 online teachers. What does exist are
recommendations and speculations that online professional development may provide experiences for online teachers regarding limitations, frustrations, successes, and processes of online learning (Norton & Hathaway, 2015). Compton et al. (2009) suggested the importance of online teachers having experience as online learners to see it from a student perspective. National standards for online teaching (International Association for K-12 Online Learning [iNACOL], 2011) highlight online teachers that have learned online will better anticipate challenges and problems in the online environment and be better at developing and implementing online teaching strategies. In a study of 830 K-12 online teachers (Dawley et al., 2010) 53% preferred a fully online, facilitated professional development opportunity. Understanding how online teachers interpret their online learning experiences could better inform the design of online professional development to help teachers make a successful transition from in-person to online teaching (Norton & Hathaway, 2015).

**Communicating Online**

Good communication skills are something all teachers should possess but are even more critical in the online environment (DiPietro et al., 2008). Verbal and non-verbal communication in the in-person classroom can help close the psychological distance between student and teacher. Online teachers are sometimes limited to written communications, which do not have the benefits of visual and voice cues (Murphy & Rodriguez-Manzanares, 2009). With many online learning communications being text-based, online teachers need to have good written communication skills. With some online teachers using video and audio tools, such as telephone and online meetings, good verbal and listening skills are essential too.

Online teachers who possess these skills can also help students develop those same skills. Online teachers can have a disadvantage in being unable to see the moment a student tunes out
during a lesson, as they sometimes cannot see them. Failure to communicate adequately can cause tension, for both student and teacher, so it is important to critique those miscommunications. Unclear directions and expectations can create confusion and conflict among online students, with the absence of visual and audio cues, which could hinder the learning process.

With all communication in the online environment being technology-based, related technology literacy skills for the teacher need to be developed. With K-12 online communication needing to be closely monitored, online teachers must be able to manage the finer aspects of communication. In an online class, one of the important roles of the teacher is to be available to provide consistent guidance on the class material. Due to this responsibility, it is common for online teachers to have expectations on how frequently they must log in to their classes and how quickly they must respond to student inquiries (Cavanaugh et al., 2009). Some online programs may require synchronous communications, such as office hours, phone calls, and online interactions. Online teachers should be trained to recognize the possible pros and cons of communication in the online environment. A possible con could include a teacher’s inability to use non-verbal cues to determine a student’s understanding of a concept. Some pros may include students feeling more comfortable participating in a discussion forum than in-person discussion and the advantage of recording and sharing online interactions.

Before the dramatic enrollment growth in online learning, Moore (1989) developed a theoretical framework for online interactions. Research in the post-secondary setting has frequently used Moore’s interaction classification while examining online learning. Moore’s framework identifies a three-part interaction scheme that includes student-content, student-teacher, and student-student interaction. Student-teacher interaction can include synchronous
communication such as video conferencing and chat, and asynchronous communication through email and discussion forums (Anderson, 2003). These forms of interaction are referenced as two-way communication between the student and teacher (Anderson, 2003).

Moore (1989) believed that high frequency and quality of student-teacher interaction are required for a successful online student experience. There is a much more robust case presented in post-secondary research related to student-teacher interaction and a positive effect on online student perceived learning and satisfaction (Eom et al., 2006; Jung et al., 2002; Kuo et al., 2014; Swan, 2001). A limited number of studies in the K-12 setting have reported the positive influence of interaction and online student attrition (Roblyer, 2006), academic integrity (Watson, 2007), and student motivation (Murphy & Rodríguez-Manzanares, 2009). Other K-12 researchers report that higher levels of interaction in online courses can improve completion rates (Hawkins et al., 2013; Turley & Graham, 2019) and increase the sense of teacher and peer presence (Borup et al., 2013; Cavanaugh et al., 2009).

A limited number of research studies have inquired of K-12 online teachers what professional development needs were rated overall as very important. DiPietro et al. (2008) interviewed 16 teachers from Michigan Virtual School and reported that online teachers need skills that allow interaction with students using multiple modes of communication, quickly respond to students to maintain motivation, and model what good communication looks like in discussion boards and email. In a national survey in 2008, with 884 online teachers, researchers reported that 74% rated professional development in the use of communication technologies as very important (Rice et al., 2008). Zweig and Stafford (2016) surveyed 170 Wisconsin and Iowa online teachers, finding that many online programs were implementing professional development to address challenges related to student perseverance and engagement. These pieces of
professional development included establishing student-teacher contact milestones and office hours. Another study found 59% of 98 online teachers surveyed mentioned good online communication with students to be the most important recommendations they have for online teacher preparation (Roy & Boboc, 2016). In 2019, Farmer and West conducted an interpretative phenomenological analysis study, interviewing seven online K-12 teachers. These teachers stressed the importance of professional development in online communications as teachers and students do not commonly use these in traditional learning environments.

**Design Model**

At present, there are very few examples of professional development for K-12 online teachers and most of what we know comes from survey research or case examples (Archambault & Larson, 2015; Rice & Dawley, 2009). One way to review professional development for online teachers more deeply is to consider the established research about teacher professional development in the in-person classroom context (Dawley et al., 2010). Desimone’s (2009) five core features have been used in many models of traditional teacher professional development, including learning communities, lesson study, and teacher inquiry/action research. The core features include content focus, active learning, coherence, duration, and collective participation and will be interpreted through the lens of online learning in this design model (see Figure 1, Dawson & Dana, 2018, p. 253).
Teachers play a specific role in online learning (Davis & Rose, 2007) and the core feature of content focus suggests teachers require professional development aligned to their job responsibilities. This would include how to effectively communicate with online students. The core feature of active learning includes professional development that actively involves teachers in the learning process. Promoting active learning during professional development could include
discussions, problem-solving simulations, and case studies (SREB, 2009). Coherence relates to teachers needing professional development using the asynchronous and synchronous online tools they will be teaching with (Davis & Rose, 2007). Professional development should include the opportunity for teachers to experience quality modeling on what it is like to learn and interact using these tools. Desimone (2009) reported that professional development focused on specific teaching practices increased teachers’ use of those practices in the classroom. While the core feature of duration does not suggest how much time is ideal, research does suggest that one-time workshops are ineffective in impacting in-classroom teacher practices (Desimone, 2009). This may not be the case for online teachers, as a focused one-time professional development may be of more value due to the technical skills required to teach online (Dawley et al., 2010).

Collective participation refers to teachers working and interacting together during professional development. As teachers work to improve their instructional practices they can learn and draw support from one another (Kennedy & Archambault, 2012).

**Design Case**

This paper introduces the design for an online professional development course on effectively communicating in the online learning environment. This paper is intended to serve as a guide for designers developing online learning professional development for K-12 online teachers. To facilitate the development of the online professional development course the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) instructional design model was used (Branson et al., 1975). Prior to any design work, a needs analysis was conducted to identify the knowledge and skills gaps, help prepare the professional development, identify priorities, and learn about the learners and type of training they need. A learner analysis,
environmental analysis, task analysis, and research on similar existing professional development opportunities were conducted.

The course is grounded in online learning and teaching research and the recommendations used are from a needs analysis of a private K-12 online learning program in the Mountain West region of the United States. The program operates in an independent study model, utilizing mostly asynchronous communication and learning tools with students. While asynchronous tools are the focus in this professional development course, more synchronous tools could be added as needed. We hope the descriptive detail of the course goals, objectives, and activities, as well as the recommendations for improvement, will serve as a foundation for those wishing to create and implement a similar course.

This professional development course is designed for both new and current K-12 online teachers. The course is designed as a professional development opportunity to enhance online interaction with students in the online environment. The course focuses on interaction as a whole and explores a variety of communication methods to give teachers a range of effective tools to use. The main focuses of the course are the pedagogy behind effective communication and how to use the technology behind the best practices.

Learners are presented with research-based best practices of effective communication, including models of the methods being advocated. Next, learners experience how to use the technology tools used in the communication best practice. Finally, learners are required to demonstrate understanding by creating effective communication with students using the tool. The course is designed to encourage learners to be active, rather than passive, in their learning process. In addition, the course is intended to change teacher perceptions and attitudes toward effectively communicating with students through their experiences in the course. This
professional development course is expected to fill a need in helping online teachers learn effective communication best practices, learning strategies, and the tools to implement them.

**Target Learners**

The target learners for this online professional development course are K-12 online teachers who are interested in learning more about the best practices of effective communication in the online environment. These online teachers may have a varied understanding and experience with in-person and online teaching and learning, may have a mixed knowledge concerning learning management system tools, and how to use the tools to make a more successful learning experience for students. There may be adjustments needed for the unique needs of the specific target learners.

This online professional development course was specifically designed for high school teachers that teach part-time for an online program. Most of the teachers teach part-time for a local school district and teaching online is for supplemental income. Teachers have content knowledge that pertains to the subjects they teach. The technology expertise varies greatly among the teachers. All teachers are pressed for time as their profession is more a lifestyle in that many hours are spent at home preparing and grading.

Many of these teachers teach online classes that are based on an independent study model. The model in most classes includes little to no teacher graded assignments and only reactive communication with students. A small portion of teachers teach classes where there are synchronous interactions and teacher-graded assignments but still reactive communications with students. This professional development course was designed to help them make the transition from their current reactive role to a more proactive role with students.
Professional Development Course

The *Effectively Communicating With Your Online Students* professional development course addresses the common challenge of student-teacher disconnect that can occur in the online learning environment. Through real-world experiences and activities, the course is designed to share best practices and requires learners to demonstrate the ability to effectively communicate with online students using a variety of tools in the online environment. Course goals, objectives, and course content were developed and aligned with online teaching standards and skills published by iNACOL (2011), SREB (2006), and VLLA & Quality Matters (2019) as well as research from the K-12 online teaching field (Archambault & Larson, 2015; Burns, 2011; Turley & Graham, 2019).

**Course Goals**

The overall goal of the course is to prepare K-12 online teachers to effectively communicate with their online students. Learners will understand the pedagogy behind the communication best practices. Learners will have the confidence to utilize and integrate the communication tools in the online learning environment.

**Course Objectives**

Learners will:

- develop an understanding of online learning interaction best practices, and
- demonstrate their ability to effectively communicate with students, through LMS tools, in various situations.

This professional development course was designed and developed in Canvas but could be adapted to be delivered in any LMS. Learners interact asynchronously with the course instructor and other learners throughout the course while engaging in community-building
activities. A focus on asynchronous tools was chosen due to the online program using this model with students. The asynchronous tools explored in this course are currently available within Canvas such as messaging, announcements, discussion boards, and assignment feedback tools. External tools explored were Acuity (scheduling tool) and Adobe Connect (virtual classroom tool) as they are currently used by the program. A prototype process was used to outline the course before the design and development steps began (Table 1).

**Table 1**

*Prototype/Design Representation*

<table>
<thead>
<tr>
<th>Module learning outcomes</th>
<th>Instructional material</th>
<th>Activity: Learner interaction &amp; engagement</th>
<th>Rubric</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Create a welcome and encouraging email to students.</td>
<td>Readings, videos, and email examples</td>
<td>Creating your welcome email and creating an email to a struggling student (Graded)</td>
<td>Welcome email rubric and struggling student email rubric</td>
</tr>
<tr>
<td>1.2 Create an announcement for students regarding course content.</td>
<td>Readings, videos, and announcement examples</td>
<td>Creating a weekly announcement (Graded)</td>
<td>Weekly announcement rubric</td>
</tr>
<tr>
<td>1.3 Respond to a student post in a discussion board.</td>
<td>Readings, videos, and discussion board examples</td>
<td>Discussion board (Graded)</td>
<td>Discussion board rubric</td>
</tr>
<tr>
<td>1.4 Grade an assignment and enter feedback for student.</td>
<td>Readings, videos, graphic, and feedback examples</td>
<td>Providing supportive feedback (Graded)</td>
<td>Providing supportive feedback rubric</td>
</tr>
<tr>
<td>1.5 Create and hold office hours for students.</td>
<td>Readings, videos, and office hours examples</td>
<td>Setting up your office hours (Graded)</td>
<td>Office hours rubric</td>
</tr>
</tbody>
</table>
Course Structure

The course was developed to help prepare teachers to improve communication with students in online courses that are primarily delivered asynchronously. Thus, the decision was made to deliver the professional development course online, in the same environment in which they will be practicing what they have learned. The course was designed to be delivered asynchronously, with a facilitator guiding participants, and assignment deadlines. Three learning modules were included in the course, a welcome module, a learning and practice module, and an evaluation module (Table 2).

Table 2

Topics in Effective Communication Course

<table>
<thead>
<tr>
<th>Module</th>
<th>Learning activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module One</td>
<td>Welcome. Participants receive an introduction to the course and instructor. Participants introduce themselves and complete a pre-self-assessment of current interaction skills.</td>
</tr>
<tr>
<td>Module Two</td>
<td>Effective Communication. Participants review research-based best practices and view model examples of student interactions. Participants review step-by-step directions on how to use the technology/tools. Participants demonstrate understanding by participating in real-world, scenario-based student interactions.</td>
</tr>
</tbody>
</table>

The first module helps to orient participants to the course design, expectations, and calendar. The welcome module also introduces participants to the facilitator and provides them the opportunity to get to know the other participants in their session. As a final task in the welcome module, participants complete a pre-assessment to test their current knowledge of the
skills they will be learning (Figure 2). This allows them to see the growth they have made at the end of the course (Burns, 2011).

Figure 2

Pre-Instructor Self-Assessment

Following the welcome module, the second module addresses the pedagogy and technology behind effectively communicating with online students (Figure 3). Participants move through module content, reading lessons and watching instructional videos to learn the research-based instruction and the how-to steps of performing the task. The following topics are addressed in the second module: (a) welcoming students, (b) struggling students, (c) announcements, (d) discussion boards, (e) feedback, and (f) office hours. After each lesson, the learners demonstrate competency of their new knowledge by either participating in discussions or turning in an assignment. Feedback provided by the facilitator and their peers helps to connect what they are learning to their practice (Norton & Hathaway, 2015).
The third module allows participants to participate in the evaluation process. Participants first re-take the self-assessment taken at the beginning of the course that allows them to rate how well they understand and can perform the skills taught in the course. Participants then complete an instructor self-evaluation that asks them to explain what areas they stayed the same or grew in, and any goals they would set moving forward. Providing formative and summative feedback can help improve instruction (Burns, 2011; Norton & Hathaway, 2015). The last evaluation piece is a course evaluation, asking participants for feedback about their overall course experience (Figure 4).
The course was designed considering Desimone’s (2009) five core features and adapting them for the online environment. The course’s content focus allows participants to take on both a student and teacher role, learning how and what teachers should do, and acting as students turning in assignments and participating in discussions. This allows them to see the learning from two different perspectives. First, participants learn the pedagogy behind a best practice (Figure 5). Second, they learn how to use the technology for the best practice (Figure 6). Third, they practice the new skill, either through an activity or assignment (Figure 7). Participants are active in the learning process during the course experience by applying what they have learned in
scenario-based assignments and discussions. The graded assignments include rubrics to help
guide participants and feedback is provided by peers and the course facilitator.

Figure 5

*Learning the Pedagogy*

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**Posting a Weekly Announcement**

Communicating often with your students is a way to avoid feelings of absence and disconnect. Giving your presence will help
students to engage in the course and online community. According to a psychological phenomenon, the mere exposure effect
suggests that people develop a preference for things simply because they are more familiar to them than others. Repeated
exposure increases familiarity ([Zajonc, 2001](#)). Weekly announcements can be key to providing the necessary, repeated contact
with your students for online teaching ([Coates, 2007](#)). So, how do we create an effective announcement that will address the
needs of students, and not end up unread?

1. **Make Your Subject Line Interesting - Catch their attention!**

Online students can get flooded with various communications, which
means that you need to give your students a reason to read yours. Here
are some ways to catch your students' attention:

- **Use numbers:** Week 12: The 2 things you need to know.
- **Use interesting adjectives:** Easy Ways to Get Ahead this Week
- **Use unique Rationale:** 3 Reasons to start on Your Paper Now
- **Use "What, Why, How, or When":** Why you want to begin your interviews now
- **Make an Audacious Promise:** How to Get an A on Your Interview Assignment

How to Get an A on your Presentation
Figure 6

*Learning the Technology How-To*

You’re announcement is now published. When using Canvas, an email will automatically be sent to your students of the new announcement.

Here is a video with a few other Announcement tips:
The course is coherent to national teaching standards and the online learning program’s expectations. This includes best practices in communication, along with the program’s communication protocol and tools used within the LMS. This course is part of a series of other required professional development opportunities for the program’s teachers. The duration of the course is designed to be a weeklong and should take participants between 5-10 hours to complete. There are multiple collective participation opportunities for participants to discuss and provide one another feedback during the learning process.
Course Evaluation

The course evaluation process used both formative and summative evaluations and was divided into two phases. This first phase was a Subject Matter Expert (SME) review that took place prior to implementation of the course. The second phase was a pilot run of the course. These two evaluation pieces were chosen due to practical constraints on time restrictions moving from design to implementation. These pieces of the evaluation are complete, and the identified improvements based on these evaluations are complete, as described in the preliminary findings section.

The first phase was formative in nature and was a SME review. The SME and the course designer reviewed the course instructional goals, objective, and each lesson to discuss the strengths and weaknesses of the course. The designer kept notes of comments and observations made during the review. After reviewing the last lesson, the SME and designer met to discuss the overall course. The following were discussed during the SME review:

1. Were the instructional goals achieved?
2. Were the lessons clear and easy to follow?
3. Were the assignments clear and easy to follow?
4. Does each lesson contain enough information to meet the learning objectives?
5. Were there any mistakes or typos?
6. How much time do you feel is needed to complete each lesson?
7. Provide any strengths or weaknesses of the course.

The second phase combined both formative and summative evaluations in a small pilot of the course with the course designer as the instructor and 10 secondary teachers. The course was conducted as designed, with the designer taking notes during the session. After completion of the
course lessons, the teachers completed summative evaluation components to measure the impact of taking the course. Teachers completed the following summative evaluations:

1. Teachers completed an instructor self-evaluation form asking them to compare their pre and post assessment results.
   - Which areas did you improve on?
   - What areas stayed the same?
   - If you could set a goal to improve in a specific area of your online teaching, what would it be?

2. Teachers completed a course evaluation form to provide feedback on the overall course learning experience.
   - How many hours did you spend on this course?
   - This course prepared me to be a more effective online instructor.
   - What were the most helpful course components?
   - What topics were not included in the course that might be helpful?

Evaluation data was gathered in each phase and analyzed using descriptive statistics for quantitative data and coding/themes for qualitative data. Observation notes used in each evaluation phase were also analyzed by creating codes and presenting themes.

**Preliminary Findings**

The first phase of the course evaluation process, the SME review, was conducted after much of the course development was completed. The SME has 10 years of teaching experience in the regular classroom, eight years of online teaching experience, and three years working as an instructional designer. The SME provided the following feedback on the professional development course:
1. Were the instructional goals achieved?

   Yes, the goals were to teach online instructors how to communicate with students proactively and effectively through a variety of tools. I really like how you teach them theory, then how-to skills, and finally let them do it by practicing the new skill.

2. Were the lessons clear and easy to follow?

   There were a few areas that could be more concise and get right to the point of what you are trying to say. I believe the lessons are straight forward and easy to follow.

3. Were the assignments clear and easy to follow?

   I like how instructors will get the chance to practice what they just learned. This is applicable to what they will be doing as online teachers. The rubrics will help guide them to meet your expectations.

4. Does each lesson contain enough information to meet the learning objectives?

   Yes, I think your struggle will be if you have learners that know all this already, as it really is a basic course for beginners. I would suggest updating the How To section on struggling students to include different information than the How To section on the welcome email.

5. Were there any mistakes or typos?

   Separate list was compiled to address reference suggestions, typos, address hyperlink consistency, and negativity in self-assessment rating scale.

6. How much time do you feel is needed to complete each lesson?
It may depend on each individual learner. I think it is reasonable that someone could get through the course in five hours.

7. Provide any strengths or weaknesses of the course.

I would suggest changing your answer choices in the instructor self-assessments to be more positive in nature. I really like the research references supporting the practice. I love the learn theory, learn technology, then practice model. Again, you may have to develop a more advance course down the road for those wanting to go further. Overall, great job on an effective professional development opportunity for online instructors.

The second phase of the course evaluation process was conducted after the suggestions from the SME review were reviewed and completed. Of the 10 secondary teachers that participated in the pilot, all are current in-person teachers, teach online supplementally, and all have taught online between three and five years.

Participants first completed an instructor self-evaluation assessment asking them to compare their pre and post assessment results at the end of their course experience. When asked to select the area(s) they felt they had improved in after the course, three noted discussion boards, four noted announcements, and five noted office hours. Sending email and providing feedback were not selected. When asked to select the area(s) they felt they stayed the same in or received lower scores in after the course, one noted announcements, two noted emails, two noted providing feedback, and five noted none. When asked to set a goal to improve in a specific area of their online teaching after the course, two noted establishing better overall presence, three noted providing positive feedback, and five noted being more consistent in student communications.
Participants next completed a course evaluation assessment to provide feedback on their overall course learning experience. When asked about how many hours the course required, eight selected 0-5 hours, one selected 6-10 hours, and one selected 16-20 hours. When asked if the course prepared them to be a more effective online instructor, three selected Agree, seven selected Definitely Agree, and none selected Disagree or Definitely Disagree. When asked to list topics covered in the course that were most helpful, five noted the technology how-to tutorials, three noted the research articles, and one each noted the additional resources, videos, and assignment rubrics. When asked what topics were not included in the course that might be helpful, the top noted topics were more on student analytics, verifying student identity, and how to create a student introduction. Also in this last answer, participants took the opportunity to note items of improvement for the course such as all references include links to research articles, chunk information in the lessons, use clear assignment directions, embed videos instead of links, and several typo suggestions.

**Discussion**

We know that student outcomes can be positively and negatively affected by teachers in the regular classroom and research suggests that online teachers can be one of the most important factors contributing to online student success (Ferdig, 2010). Currently, the research on professional development for K-12 online teachers is limited. We continue to read that there is a need for promising practices in preparing K-12 educators for the online environment (Archambault & Larson, 2015; Dawson & Dana, 2018; Kennedy & Archambault, 2012). We suggest that identifying promising practices is crucial, but not sufficient in terms of research on professional development for K-12 online teachers. Thus, there is a need for creating effective models and practice of professional development for K-12 online teachers to increase the success
of K-12 online courses. The professional development should be intentionally and systematically planned for an organization to meet the needs of their K-12 online teachers.

Professional development should align with the unique role of the online teacher and with unique pedagogies, infrastructure, and technology tools used in the online environment. While research on professional development for in-person teachers can be beneficial, adaptations will need to be made as to meet the unique needs of K-12 online teachers. Based on our design model presented above, Desimone’s (2009) core features of professional development can be modified to fit within the unique needs of online teachers. As identified by Dawson and Dana (2018), there are some potential nuances related to professional development for K-12 online teachers. Further research is needed to support these professional development nuances and establish core principles for K-12 online teachers.

The initial evaluation using the SME review and small pilot were beneficial in identifying aspects of the professional development course in need of improvement. In this study we collected and analyzed the SME review feedback and teacher assessment responses to better understand how to improve a professional development course designed to improve communication between the teacher and students. The recommendations and direction of the preliminary findings are recorded in Table 3 along with the status for updates to the course.
Table 3

**Recommendations and Direction From Preliminary Findings**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Direction</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add links to all research article references</td>
<td>The pedagogy centered lessons include research-based references. All references now include links to full research articles.</td>
<td>Complete</td>
</tr>
<tr>
<td>Embed all videos</td>
<td>The course contains videos in the lesson and how-to areas. Be consistent in making all videos embedded so participants do not have to follow links outside course.</td>
<td>Complete</td>
</tr>
<tr>
<td>Chunk information and be more concise</td>
<td>Lessons cover a lot of material and topics. Chunk information and be concise.</td>
<td>Complete</td>
</tr>
<tr>
<td>Fix broken links and typos</td>
<td>Spelling, punctuation, run-on sentences, and broken links across course.</td>
<td>Complete</td>
</tr>
<tr>
<td>Change negative tone in self-assessment rating scale</td>
<td>Self-assessment rating scale has choices with a negative tone (e.g., not even close, I have tried this once).</td>
<td>Complete</td>
</tr>
<tr>
<td>Include clear assignment directions</td>
<td>Some assignments refer participants to prior lesson. Include clear details on assignment direction pages.</td>
<td>Complete</td>
</tr>
<tr>
<td>Add more topics and deeper knowledge exploration</td>
<td>Course is designed to cover basic information on effectively communicating with online students. For those with previous knowledge and experience, provide more depth and breadth of topics.</td>
<td>In process</td>
</tr>
</tbody>
</table>
In the recommendations from preliminary findings, a recommendation from some of the participants was to add some additional topics and go deeper with a few other topics in the professional development course. The original design intent was to cover basic information regarding effective communication practices in the online environment to help teachers start the transition from a reactive to proactive communication model. The request for additional topics and deeper exploration of a few topics has begun, but as a supplemental, just-in-time opportunity that will be added to an existing catalog of other professional development.

Designers will inevitably encounter challenges as they work on professional development projects. Some of the challenges we encountered during this project were outside the design and development realms. We share the following challenges in Table 4, and how we dealt with them, to hopefully provide insight in a future design effort. While not all the requests and solutions provided immediate results, this project was accomplished on time.
Table 4

**Challenges and Solutions**

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional development course needed to be operational in a short amount of time.</td>
<td>Request for additional resources (people and time). Not all our requests were granted. This meant shuffling resources and adjusting other projects.</td>
</tr>
<tr>
<td>Varying technology skills for each learner.</td>
<td>Course was built with step-by-step directions and videos for each how-to resource. This allows skilled and non-skilled learners to use the most appropriate resource.</td>
</tr>
<tr>
<td>Learners have limited time.</td>
<td>Course is online, asynchronous, but with due date to help learners have timeline to finish.</td>
</tr>
<tr>
<td>Unique goals of program to move from proactive to reactive communication model.</td>
<td>Conducted learner, environmental, and task analyses, researched existing professional development models, and created a prototype. This helped guide the professional development project.</td>
</tr>
<tr>
<td>A third of the way through the development phase the need to have how-to resources for two LMS was presented.</td>
<td>Explored OER and already created resources that would not have to be created from scratch.</td>
</tr>
<tr>
<td>Quick turnaround and non-availability of pilot participants.</td>
<td>Offered stipend and opportunity to be course facilitators in future sessions if participated in pilot.</td>
</tr>
</tbody>
</table>

There were many lessons learned about designing professional development for K-12 online teachers during this study. Here are a few we would recommend when designing: (a) Explore the literature and research what others are doing as this process can help frame your professional development design, (b) Identify what you want your participants to learn, how they will demonstrate learning, and then develop and design your professional development to achieve it, (c) Link theory and practice; focus on pedagogy and technology skills during the learning
process, (d) Develop a clear and consistent structure, prioritize user experience over aesthetics, (e) Invest in a SME review and run a small pilot, as the feedback is worth the time, (f) Reflect and revise, use an evaluation framework such as ADDIE and make improvements as you go.

**Conclusion**

As K-12 online learning continues to grow, so will the need to provide professional development for K-12 online teachers. Our goal was to create an online professional development course to prepare K-12 online teachers to effectively communicate with their online students. By sharing the development and design of the professional development course our hope is that other K-12 online designers and administrators will have a framework on which to build. We recommend using instructional design best practices, such as ADDIE, to create a professional development opportunity that best fits the needs of your program and teachers. We are encouraged by the results of the SME review and small pilot, as the feedback was effective to improving our overall design.

This study included a small set of participants so the findings cannot be generalized and should be considered only within this research context. We recommend that future studies continue to explore the design of K-12 online teacher professional development, the practices used by those delivering the professional development, and the sustainability of the professional development. Future studies might also include observational measures to determine how teachers transfer acquired knowledge to the online environment and if changes result in improved student outcomes. With the lack of research in K-12 online teacher professional development, we recommend that professional organizations and university scholars develop an agenda for research, policy, and practice related to K-12 online teacher professional development.
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ARTICLE 3

Moving From Reactive to Proactive Communication in K-12 Online Teaching

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Abstract

The growth of K-12 online learning has increased the need for schools and programs to provide students with competent online teachers. The skills needed to teach in the online environment are not always transferable from the regular classroom. This case study examined the effectiveness of a professional development course designed to improve pedagogical knowledge and technical skills to effectively communicate with online students. The course content, structure, and delivery allowed the 80 participants to learn as an online student. The results of pre and posttest assessments and a course evaluation found that the course content and assignments improved participants’ knowledge and skills. Analysis of 11 teacher interviews found that participants appreciated the online format of the course, valued feedback from the facilitator, felt the peer-to-peer interactions impacted their learning, and thought the course modeled good online learning. This suggests that it is just as important for professional development to focus on what will be taught, as it is to focus on how it will be learned. Virtual walkthroughs of participating teachers’ online classes showed implementation of learned skills from the professional development course. Future studies should explore the effects of professional development for online teaching and student satisfaction and success.

*Keywords*: online teaching, professional development, online interaction
Introduction

As the demand for K-12 online courses continues to increase, so does the need for instructors to move from the mindset of the traditional classroom to the online environment. Effective techniques in the traditional classroom are not necessarily effective in the online classroom (Barbour, 2012). Even experienced and successful teachers may struggle to make the transition, making online teaching professional development necessary (Graziano & Bryans-Bongey, 2018). Teachers who are properly trained in online pedagogy and technology skills will be more effective and can deliver a more consistent and quality learning experience to students (Archambault & Crippen, 2009). Unfortunately, research has found that many teachers have not had proper professional development opportunities in the needed skills to make a successful transition to the online environment (Archambault & Larson, 2015; McAllister & Graham, 2016).

Rice and Dawley (2007) conducted a nationwide survey of 828 K-12 online teachers and found 62% of the teachers received no professional development prior to teaching online. In 2010, a survey of over one thousand K-12 districts across the United States reported less than 4% of their teachers received online teaching strategies in their instructional methods courses (Project Tomorrow, 2010). A 2015 survey of 325 K-12 online teachers, over 31% reported that their preparation for online teaching was self-taught (Archambault & Larson, 2015). McAllister and Graham’s (2016) research found that only nine states offered online teaching endorsements. These studies recommended that online teachers need professional development specifically addressing online teaching and it should be provided prior to teaching online.

In the regular classroom, teachers that received professional development focused on specific teaching practices led to increased use of those practices in the classroom (Desimone,
Current online teachers have reported that the most common content covered in professional development has been technical aspects such as teaching them to use the LMS (Learning Management Software) (Pagliari et al., 2009, Rice & Dawley, 2007). While learning the technology skills required to teach online are important, without the introduction to online pedagogy, teachers may tend to rely on traditional classroom pedagogies instead of transferring their practice to the online environment (Archambault, 2011; Barbour, 2014; Davis & Rose, 2007). Teachers can develop technical and pedagogical competencies through teacher preparation, professional development, and teaching practice (McAllister & Graham, 2016; Serdyukov, 2015).

The purpose of this study was to implement an online professional development course for online high school teachers, providing them with technical and pedagogical strategies for effective communication with their online students. In this case study, we analyzed teacher evaluations, course evaluations, and teacher interviews. More specifically, we addressed the following question: What perceived impact did the professional development have on teachers’ knowledge and skills required to effectively communicate with students?

**Literature Review**

In this section, we first discuss suggested best practices for improving communication with online students. Second, we review possible professional development approaches to prepare teachers for the online environment. Third, we explore design models for online teacher professional development. Lastly, we review the four levels of evaluation in the Kirkpatrick (1998) model used for professional development evaluation.
Online Pedagogy

Research has reported that many K-12 online teachers are lacking consistent professional development in online pedagogy, resulting in the need to provide professional development in applicable online teaching strategies (Archambault & Larson, 2015; DiPietro et al., 2008; Rice & Dawley, 2007). While most instructors are trained in the LMS, pedagogical professional development is quite different. Development in this area is imperative because techniques that are effective in the traditional environment are not necessarily effective in an online environment. (National Education Association [NEA], 2008). Needed pedagogical skills can include encouraging student interaction, providing feedback, and classroom management (McAllister & Graham, 2016; Pulham & Graham, 2018). Teachers can develop these skills through a series of experiences including teacher preparation, teaching practice, and professional development (McAllister & Graham, 2016; Serdyukov, 2015).

Many high school-aged students are lacking strong learner attributes and need to be coached and encouraged during the learning process (Cavanaugh et al., 2004). One of the ways that K-12 online teachers can support students is by staying engaged and interacting with them (Rice & Dawley, 2007). Researchers have suggested that online teachers need to make the transition from teacher to facilitator, guiding students through the learning process (Archambault & Larsen, 2015; Kennedy & Archambault, 2012; Murphy & Rodriguez-Manzanares, 2009). Instructor presence, in the form of structured, regular communication between student and teacher, helps make up for the lack of little to no face time (Archambault & Larsen, 2015; DiPietro et al., 2008; Dixson, 2010). Due to the physical distance between student and teacher in the online environment, checking in with students can build relationships and ease feelings of isolation (McInnerney & Roberts, 2004; Murphy & Rodriguez-Manzanares, 2009).
Multiple online teaching standards recommend frequent and prompt feedback to students (International Association for K-12 Online Learning [iNACOL], 2011; NEA, 2006; Southern Regional Education Board [SREB], 2006; Virtual Learning Leadership Alliance [VLLA] & Quality Matters, 2019). Furthermore, researchers have identified online teaching best practices that include prompt feedback on student assignments, communication, and progress (Archambault & Larsen, 2015; DiPietro et al, 2008; Kennedy & Archambault, 2012; Murphy & Rodriguez-Manzanares, 2009). Researchers suggest that feedback to students should be timely, thorough, and individualized for students to grow academically (Bigatel et al., 2012). Feedback that is consistent, prompt, and relevant has been shown to contribute to student performance in higher education settings (Goldsmith, 2014; Thiele, 2003). This helps the student in cultivating the learning experience and fosters a connection with the teacher (Bonnel & Boehm, 2011). Feedback should be provided to students contributing to a discussion board, submitting an assignment, or project, and be consistent throughout the course process (Eom et al., 2006).

When teaching online, teachers must learn to alter many of the classroom management strategies they have become accustomed to, such as keeping students on pace, answering technology questions, and interacting with students. Online teachers will need to learn new technology tools to monitor student progress, identify students that are struggling, and encourage them to be active learners (iNACOL, 2011; SREB, 2006; VLLA & Quality Matters, 2019). Online students may feel less isolated when teachers begin contacting students regularly from the first day of class (Hawkins et al., 2013). A survey of current K-12 online teachers asking about desired professional development opportunities, reported the highest response was learning management system professional development (Archambault & Larson, 2015). Multiple online teaching standards recommend that online teachers know how their course is structured in the
LMS and where and how students are accessing material (NEA, 2006; SREB, 2006). Without scheduled meeting times in some online models, Davis and Rose (2007) suggested online teachers should efficiently use both asynchronous and synchronous tools to develop relationships and establish lines of communication with students.

**Professional Development Approaches**

The importance of online teaching professional development is well documented, but many studies focus on the topics that should be taught, rather than how to teach it. Just as there are many ways to teach online, there are many ways to provide professional development to online teachers. Traditional forms of professional development, such as workshops, observations, conferences, and seminars are presented as most frequently used formats for K-12 teachers and University faculty. Researchers suggest the most effective professional development taking place at school sites and in classrooms (Bryk et al., 1999; Garet et al., 2001). Many higher education institutions report offering face-to-face delivery as the most frequent form of online teacher professional development (Meyer & Murrell, 2014).

More recent research highlights professional development can also be offered as webinars, through mentorships, boot camps, and online modules (Borup & Evmenova, 2019). Online professional development can be offered both synchronously, asynchronously, or blended, and be cohort or independent study based (Rienties et al., 2013). Some researchers also support in-depth and more frequent professional development (Meyer & Murrell, 2014), others emphasize standardized and just-in-time professional development (Roy & Boboc, 2016), while others recommend the idea of individualized professional development (McQuiggan, 2012).

There are few existing studies, only in the post-secondary setting, that explore modeling best practices for online teaching and learning using online professional development. Rienties et
al. (2013) reported higher online teaching confidence, increased satisfaction, and increases in technological, pedagogical, and content knowledge for those faculty that completed online teaching professional development modules. Other researchers found that online teaching professional development positively impacted faculty members’ attitudes and perception about the online teaching environment (Borup & Evmenova, 2019). Multiple researchers report that the online delivery and opportunity to learn as an online student had the largest impact on faculty (Borup & Evmenova, 2019; Ginzburg et al., 2010). As the need for online teaching continues to grow and develop, there is little research that discusses the effectiveness of an online professional development format for K-12 teachers preparing to teach online (Norton & Hathaway, 2015).

**Design Models**

Online learning delivery model differentiation is an important aspect to consider when discussing professional development needs (Rice & Dawley, 2009). Many online programs and school districts use different learning management systems that require specific skills. Some K-12 teachers work full-time while others work part-time, some work from home while others work on campus, and some work with students only from their schools, while others work with students across multiple states (Gemin et al., 2015). Differences in course delivery models, teachers, curriculum, and different grade levels add to the complexity and indicate that professional development may need to be individualized according to needs (Borup & Evmenova, 2019; Rice & Dawley, 2009).

In the current literature there are few examples of implemented professional development for K-12 online teachers, and most of the research has been survey research or done at the university level (Archambault & Larson, 2015; Borup & Evmenova, 2019; Rice & Dawley,
With limited studies for reference, another way to explore professional development for online teachers is to consider existing research in the regular classroom context and adjust it to the online environment (Dawley et al., 2010). In 2009, Desimone proposed five core features, which include content focus, active learning, coherence, duration, and collective participation to be used in various models of traditional teacher professional development. Dawson and Dana (2018) examined K-12 online teacher professional development using Desimone’s (2009) five core features of professional development to consider connections for K-12 online and blended teachers.

The first core feature is content focus, which recommends providing specific professional development related to the teacher role and aligned to their job responsibilities (Davis & Rose, 2007; Dawson & Dana, 2018; Desimone, 2009). For K-12 online teachers this could include technology, classroom management, and communication skills (Dawson & Dana, 2018). The second core feature of active learning encourages teachers to be actively involved in the learning process during professional development (Dawson & Dana, 2018; Desimone, 2009). Professional development activities that promote active learning could include discussion boards, modeling, and simulations (Dawson & Dana, 2018; SREB, 2009). The third core feature of coherence relates to the online teacher’s use of asynchronous and synchronous online tools (Dawson & Dana, 2018). Teachers need quality modeling, real world examples, and practice time to interact with these tools. In the regular classroom, Desimone (2009) found that teachers who spent time focusing on specific teaching practices increased use of them later in the classroom. The fourth core feature of duration does not give specific guidance on a required time commitment for professional development, Desimone (2009) did suggest that research has found one-time workshops to be ineffective for impacting teaching practices. Dawley et al. (2010)
argued that one-time professional development may be more valuable to online teachers as they learn new technology skills. The last core feature of collective participation recommends that online teachers collaborate, share, and interact together during professional development (Dawson & Dana, 2018; Desimone, 2009). Teachers working together during professional development allows them to share instructional practices and draw support from one another (Kennedy & Archambault, 2012).

**Evaluation of Professional Development**

The Kirkpatrick model was originally designed as a process to appraise and evaluate professional development programs in the workplace (Kirkpatrick, 1959). The model has become one of the most recognized and established approaches for evaluating corporate professional development programs due to its systematic structure and not requiring a large amount of administration time. The Kirkpatrick model has been implemented in higher education settings with varying opinions (Abdulghani et al., 2014; Chang & Chen, 2014) and been identified as an effective method of evaluating web-based professional development programs (Driscoll, 2002; Lee & Owens, 2000). The four evaluation levels used in this model are reaction, learning, behavior, and results (Kirkpatrick, 1998).

The first level of program evaluation, reaction, measures the degree of how participants feel about the professional development, if it was engaging, and relevant to their jobs (Kirkpatrick, 1998). Kirkpatrick suggested using surveys or reaction forms to collect and analyze participants reactions to the professional development. The second level of program evaluation, learning, measures the changes in knowledge, skills, and attitude that participants acquire because of the professional development (Kirkpatrick, 1998). Kirkpatrick recommended evaluating skills both before and after the professional development to measure the learning that
has taken place. The third level of program evaluation, behavior, measures the degree to which participants apply new knowledge to their jobs learned during the professional development (Kirkpatrick, 1998). Kirkpatrick suggested using a mix of observations and interviews to assess behavioral changes in the participants. The fourth level of program evaluation, results, focuses on measuring if the targeted outcomes are occurring because of the professional development (Kirkpatrick, 1998). Kirkpatrick recommended using observations and evaluations to identify improvements and benefits from the professional development.

Methods

Graham (2016) noted that online learning research commonly uses case studies due to the flexible method and application to a wide variety of content. Case studies are ideal when looking to explore, explain or describe events in the contexts in which they occur (Yin, 2003). A case study also investigates and brings out details from the perspective of the participants (Yin, 2003). Eysenck (1976) describes the case study as an exploration, and rather than always working to prove new findings; researchers should give some credibility to the notion of better understanding a topic. Case studies also are bounded by time and activity, focusing on a single, bounded unit or system (Creswell, 2014; Merriam, 1998). For this case study, we set our boundaries of inquiry around a new professional development course in a single online learning program.

Participants

This online professional development course was specifically designed for 80 high school teachers that teach part-time for an online program. There are currently 49 female teachers and 31 male teachers. All the teachers have bachelor’s degrees, while 56 have obtained their master’s degree, and six have a PhD. The online teaching experience of these instructors ranges from 1 to
33 years. Most of the teachers teach part-time for a local school district and teaching online is for supplemental income. Teachers have content knowledge that pertains to the subjects they teach. The technology expertise varies greatly among the teachers. All teachers are pressed for time as their profession is more a lifestyle in that many hours are spent at home preparing and grading.

Many of these teachers teach online classes that are based on an independent study model. The model in most classes includes little to no teacher graded assignments and only reactive communication with students. A small portion of teachers teach classes where there are synchronous interactions and teacher graded assignments but still reactive communications with students. This professional development course was designed to help them make the transition from their current reactive role to a more proactive role with students.

**Context and Setting**

This case study was conducted at a nonprofit online educational program in the western United States. The Educational Services division developed the *Effectively Communicating With Your Online Students* professional development course to prepare online teachers that are currently delivering independent study, asynchronous courses with more effective communication skills. The duration of the course was designed to be a weeklong and generally take participants between 5-10 hours to complete. The professional development course was delivered online, asynchronously with assignments, peer to peer interactions, and collaboration among the participants. The course was designed to be delivered asynchronously, with a facilitator guiding participants, and assignment deadlines.

This professional development course was designed and developed in Canvas but could be adapted to be delivered in any LMS. Learners interact asynchronously with the course instructor and other learners throughout the course while engaging in community-building
activities. A focus on asynchronous tools was chosen due to the online program using this model with students. The asynchronous tools explored in this course are currently available within Canvas such as messaging, announcements, discussion boards, and assignment feedback tools. External tools explored were Acuity (scheduling tool) and Adobe Connect (virtual classroom tool) as they are currently used by the program.

Course Goals

The overall goal of the course is to prepare K-12 online teachers to effectively communicate with their online students. Learners will understand the pedagogy behind the communication best practices. Learners will have the confidence to utilize and integrate the communication tools in the online learning environment.

Course Objectives

Learners will

• develop an understanding of online learning interaction best practices, and
• demonstrate their ability to effectively communicate with students, through LMS tools, in various situations.

The first module introduces participants to the facilitator and provides them the opportunity to get to know the other participants in their session. The first module helps to orient participants to the course design, expectations, and calendar. Following the introductory module, the second module addressed the following communication topics: (a) welcoming students, (b) struggling students, (c) announcements, (d) discussion boards, (e) feedback, and (f) office hours. The third module allows participants to participate in the evaluation process by completing a self-evaluation and course evaluation.
Participants were organized into manageable learning groups, each containing 10-15 teachers. Participants take on both a student and teacher role within the course, first learning what teachers should do, then acting as students by participating in discussions and assignments. The course is designed to first have participants learn the pedagogy, then learn how to implement it using technology in the LMS. Finally, they demonstrate their learning through practice in scenario-base assignments and discussions. The course facilitator provides feedback and guidance using assignment rubrics. Participants must complete all assignments and pass the overall course with an 80% or higher.

**Instruments**

The data used for this study was collected from four instruments, a teacher assessment, a course evaluation, and two interviews. All instruments used in this study relied on self-reported data from the participants, which creates a limitation and may not provide an accurate reflection of teachers’ perceptions.

**Course Evaluation**

Teachers completed a course evaluation at the end of the course asking them to provide feedback on the overall course learning experience. The following questions were asked:

1. The professional development course design allowed me to be actively involved in and contribute to my learning.

2. What I have learned in this professional development course will be applicable in teaching online.

3. I am satisfied with my experience in this professional development course.

The course evaluation used a four-point scale (from 1 = strongly disagree through 4 = strongly agree).
Teacher Assessment

Teachers completed an assessment at the beginning of the course to rank their experiences with the different skills taught in the course. Teachers then completed the same assessment at the end of the course, to assess the learning growth they have experienced. Below were the questions in the assessments.

1. I can establish my presence in my course on a regular basis via announcements, feedback, email, online office hours, and various other methods.
   - Never done this.
   - I am trying with mixed results.
   - I can do this successfully.
   - I am an expert and can teach others.

2. I understand the pedagogy behind sending students a welcome email and can send an effective welcome email to let students know I care and want to connect with them.

3. I understand the pedagogy behind sending a struggling student an email/message and can send an effective email/message to let students know I see their struggles and want them to be successful.

4. I understand the pedagogy behind posting weekly announcements and can post an effective announcement to keep students encouraged, revisit course expectations, and focus on upcoming assignments.

5. I understand the pedagogy behind discussion boards and can participate in discussions to act as a mediator to help guide and focus the discussion.

6. I understand the pedagogy behind meaningful feedback and can provide student feedback that is positive, specific, and identifies strengths and weaknesses.
7. I understand the pedagogy behind virtual office hours and can offer office hours that promote and encourage a safe, inviting opportunity for students to ask questions.

**Interview One**

Eleven teachers participated in interviews at the end of their course experience. The following questions were asked:

1. How long have you taught in-person?
2. How long have you taught online?
3. About how many hours did you spend in this course, including all the readings and assignments? What areas do you plan to change in communicating online with your students?
4. How did the professional development impact your pedagogical knowledge on communicating with students?
5. How did the professional development impact your technical knowledge on communicating with students?
6. How did the professional development impact your confidence/motivation to effectively communicate with students?

**Interview Two**

The same 11 teachers that participated in the first interview were interviewed two months later. The following questions were asked:

1. How have you done overall in implementing the things you learned in the professional development course?
2. What has helped or hindered you from implementing them?
3. How are your confidence/motivation levels in effectively communicating with your students?

**Data Analysis**

Research data were gathered in each phase and analyzed using descriptive statistics for quantitative data and coding/themes for qualitative data. The course evaluation and teacher assessment used descriptive statistics, interview one used both descriptive statistics and coding/themes, and interview two used coding/themes.

For the coding/themes for qualitative data two researchers individually read and identified themes from the interview questions. Themes were categorized based on their perception on the underlying data. Following this step, the two researchers adjusted and integrated their individual coding rubric into a unified coding rubric. The two researchers then attempted a trial coding of the data using the unified rubric to determine ease of use, needed clarification, and categories that could be eliminated or combined. Several iterations were necessary prior to finalization of the coding rubric. Using the established coding rubric, the first phase of coding was independently conducted by the two raters coding the interview questions responses into categories. The two raters then revisited and discussed each coding non-agreement through collaboration, using consensus agreement, to finalize the ratings.

**Results**

The findings are organized into four areas related to the Kirkpatrick model of evaluating professional development (a) reaction, (b) learning, (c) behavior, and (d) results.

**Level One: Reaction**

The first level of the Kirkpatrick model, reaction, suggests measuring participant satisfaction, engagement, and relevance to their jobs after the professional development has
happened (Kirkpatrick, 1998). Figure 1 presents the results from the course evaluation at the end of the course asking participants to provide feedback on their overall course learning experience.

**Figure 1**

*Course Evaluation*

![Course Evaluation Chart]

Participants were asked if the professional development course allowed them to be actively involved in their learning process with the highest responses being Strongly Agree/Agree (*n* = 78, 97.5%), followed by Disagree/Strongly Disagree (*n* = 2, 2.5%). Participants were asked if the learning they acquired in the professional development course will be applicable in teaching online with the highest responses being Strongly Agree/Agree (*n* = 77, 96.3%), followed by Disagree/Strongly Disagree (*n* = 3, 3.7%). Participants were asked if they were satisfied with their experience in the professional development course with the highest responses being Strongly Agree/Agree (*n* = 74, 92.5%), followed by Disagree/Strongly Disagree (*n* = 6, 7.5%).
**Level Two: Learning**

The second level of the Kirkpatrick model, learning, suggests measuring the changes in attitude, skills, and knowledge that participants acquire due to the professional development (Kirkpatrick, 1998). Kirkpatrick recommended measuring these items both before and after the professional development to see where knowledge gains have been made. Table 1 presents the results from pre and post assessments taken by participants before and after the professional development course.

**Table 1**

*Pre and Posttest Comparison*

<table>
<thead>
<tr>
<th></th>
<th>Pretest ((n = 80))</th>
<th>Posttest ((n = 80))</th>
<th>(SD)</th>
<th>Paired (t) test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall presence in course</td>
<td>2.65</td>
<td>3.30</td>
<td>.46</td>
<td>3.49</td>
</tr>
<tr>
<td>Student welcome email</td>
<td>2.60</td>
<td>3.29</td>
<td>.59</td>
<td>1.12</td>
</tr>
<tr>
<td>Struggling student email</td>
<td>2.67</td>
<td>3.25</td>
<td>.51</td>
<td>1.49</td>
</tr>
<tr>
<td>Posting weekly announcement</td>
<td>2.31</td>
<td>3.14</td>
<td>.62</td>
<td>2.02</td>
</tr>
<tr>
<td>Discussion boards</td>
<td>2.21</td>
<td>3.14</td>
<td>.49</td>
<td>1.81</td>
</tr>
<tr>
<td>Meaningful feedback</td>
<td>3.05</td>
<td>3.30</td>
<td>.46</td>
<td>.003*</td>
</tr>
<tr>
<td>Virtual office hours</td>
<td>2.41</td>
<td>3.09</td>
<td>.59</td>
<td>1.62</td>
</tr>
</tbody>
</table>

*\(p < .05\)*

Descriptive statistics of assessment responses showed slight increases in mean difference in all seven areas asked of participants from the pre to the post. The three largest increases were *Discussion boards* (+0.93, \(SD = 0.49\)), *Posting weekly announcements* (+0.83, \(SD = 0.62\)), and *Student welcome email* (+0.69, \(SD = 0.59\)). *Meaningful feedback* also increased on average, but the change did not appear as meaningful (+0.25, \(SD = 0.46\)). The average change in *Meaningful feedback* also has a standard deviation higher than the mean increase, indicating a large variance across participants.
A paired $t$ test was conducted to explore if a significant difference in the pre and post assessment scores existed. The three highest mean differences between the pre and post assessment, *Discussion boards* $(p = 1.81)$, *Posting weekly announcements* $(p = 2.02)$, and *Student welcome email* $(p = 1.12)$ did not differ significantly at the .05 level. The only area to show a statistically significant difference between the pre and post assessment was *Meaningful feedback* $(p = .003)$.

The remainder of this section will discuss results from the first interview, with 11 participants, conducted shortly after the professional development course was completed. Table 2 reports information about participants’ teaching and professional development experience. Of the 11 participants, five are female and six are male. All 11 participants teach part-time for the online program in this study, while 10 work full-time for local school districts, and one full-time for another online learning business. All 11 participants have received their bachelor’s degree and six have their master’s degree.

**Table 2**

*Participant Information*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Years teaching in classroom</th>
<th>Years teaching online</th>
<th>Hours to complete PD course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>5</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Participant 2</td>
<td>17</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Participant 3</td>
<td>27</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Participant 4</td>
<td>10</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Participant 5</td>
<td>7</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Participant 6</td>
<td>10</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Participant 7</td>
<td>30</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Participant 8</td>
<td>19</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Participant 9</td>
<td>14</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Participant 10</td>
<td>12</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Participant 11</td>
<td>14</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
Like the course evaluation and posttest responses, analysis of the participants’ interviews found that the course helped improve learning of how to communicate with students in the online environment. All the participants with more than three years of online teaching experience ($n = 9, 82\%$) mentioned in the first interview that the professional development course was a “great reminder,” “good refresher,” or “good review.” The two participants with less online teaching experience ($n = 2, 18\%$) commented that the course was very helpful in learning how to communicate with online students.

**Areas to Change**

Participants were asked what areas they plan to change in communicating online with their students, with most teachers mentioning multiple areas. Regularly reaching out to students was the most cited area of change by participants ($n = 8, 73\%$). Participant 2 stated, “I want to be better about reaching out to students when they reach a certain place in the course, or if they have not logged in for a while.” Participant 3 added, “I plan to reach out to students with open ended questions, hoping to clarify questions they may have.” The other top responses include sending a welcome email ($n = 5, 45\%$), holding office hours ($n = 5, 45\%$), posting announcements ($n = 4, 36\%$), and managing discussion boards ($n = 4, 36\%$). Participant 9 and participant 10 stated that they felt they were “good at this already” and “already doing these things” and thought they could improve by providing more positive student feedback.

**Impact on Pedagogical Knowledge**

The professional development course structure was mentioned most as a reason for the most impact on pedagogical knowledge. Participants explained that the online lessons, containing the pedagogy behind the best practice, helped them to understand the why. Participant 8 stated, “I liked how there were research references in the online lessons that taught the why,
not the how, because I know the how already.” Eight of the participants expressed that taking the professional development in the student role was impactful on their learning. More specifically, Participant 11 explained, “Participating in the course from a student role really helped me to understand things from a student perspective better.” Other participants mentioned the modeling and examples used in the professional development course. For instance, Participant 5 recalled seeing multiple options for providing student feedback, “I had no idea that you could provide video feedback to students and the example video really helped me visualize it.” Participants also found that interactions with their peers had an impact on pedagogical knowledge. Participant 1 stated, “I learned a lot from my fellow colleagues, who I value their thoughts, as they are experiencing the same situations I am.” Participant 7 found that “my peers approach things differently” and appreciated “seeing ideas from different perspectives, depending on the content they teach.”

**Impact on Technical Knowledge**

While the professional development structure helped improve participants pedagogical knowledge, the how to lessons and assignments were mentioned in helping improve technical knowledge. Participants were required to use some of the technological tools to show what they had learned in the lessons. Interview participants explained the course assignments “helped hold me accountable for learning the technology,” “allowed me to practice what I just learned,” and “forced me to see things from a student perspective.”

The interview analysis found there was varying degrees of participants comfort levels with technology. Many of the participants stated that they felt comfortable with technology and the course provided a good review of important technology concepts. Participant 6 explained, “Being new to online learning I thought I knew plenty, but the course showed me there was so
much more to learn.” Participant 6 followed up with, “I am glad to know that I will still have
access to the training course after, as I plan to revisit it from time to time.” Participant 4 was at a
higher technology level, stating, “I wish the interactions with technology went deeper and
explored more options.” Other participants expressed other ways that the technical knowledge
helped them. Participant 7 explained, “This helped me improve my knowledge of technology so
that when Covid affected my regular classroom, I was much more prepared in comparison to my
colleagues.” Participant 6 stated, “I was not sure what I had permission to do as a new online
teacher, so this was extremely helpful to me.”

**Impact on Confidence and Motivation**

Much like the varying degrees of technology knowledge among participants, the
professional development course impacted participant confidence and motivation differently.
Participant 1 stated, “Any kind of professional learning is always a good motivator, or a pep talk
for what is coming next.” Participant 10 explained, “I felt some of the training was a waste of my
time, as a teacher that already has practice with these things.” Two of the participants with less
online teaching experience expressed that the course “helped my confidence” and “motivated me
as I saw excitement from other teachers learning new things.” The same two participants were
“excited to have access to return later to the course when they have questions or want to revisit
something.” Many of the more experienced participants felt the course was a “good review” with
“good reminders” but “may be more valuable for a beginning online teacher.” Participant 9
mentioned the training felt similar to some past trainings they had participated in and the course
did not increase their confidence and motivation.

Many participants pointed out factors that helped motivate them and increase their
confidence to finish the professional development course. For instance, Participant 5 mentioned,
“I loved interacting with the course facilitator. It gave me peace of mind to know someone was there to help if I needed it.” Participant 3 stated, “Personalized feedback from the facilitator fed my confidence.” Participants again mentioned their fondness of peer interactions on the discussion boards. Participant 4 explained that after interacting with others on the discussion boards “it will be fun to try this with students in my own classes.” Six participants made comments about liking that the professional development course was offered online. More specifically, Participant 7 stated, “I liked the course being online, as it makes sense that we teach online that we should as teachers should learn online as well.” Participant 6 added, “I appreciated the online format, as I could work on it when I had time in my schedule.” Two more participants mentioned that the professional development course modeled “good online learning overall” and “inspired me to add some things to my own online class.”

**Level Three: Behavior**

The third level of the Kirkpatrick model, behavior, looks to measure the degree to which participants are applying new knowledge learned during the professional development to their jobs (Kirkpatrick, 1998). A second interview was conducted, with the same 11 participants, two months after the first interview. Three questions were asked to gauge how the eleven participants were implementing and feeling about the items learned in the professional development course.

**Implementing the Learning**

Nine of the 11 participants commented that they have regularly been implementing the skills they learned in the professional development course, with one participant stating, “it has been a struggle” and another participant stating, “I have sent out a few.” Five participants mentioned that as a result of their reaching out efforts they are seeing increased student communications. For example, Participant 5 explained, “I have put commonly asked questions
and answers in my student email so that students understand more.” Participant 10 has already revised the student welcome email twice “to be more specific” after receiving “feedback from students.” Two participants explained that even with increased proactive communication on their part has resulted in “limited student responses” and “crickets so far.”

**Helped or Hindered**

Four participants responded that it was helpful to set reminders on their phones or calendars to remind themselves about sending out student communications. Five participants mentioned shortcomings in the learning management system which have hindered implementation. Two participants stated frustration that the system “does not notify us when new students start” and “scrolling through the gradebook to find new enrollments” can be time consuming. Participant 1 had started keeping a spreadsheet to “keep track of who I have emailed and who I have not.” Participant 3 wanted to learn more about how to receive notifications that a student had posted on a discussion board “without having to look for new comments.”

**Confidence and Motivation Levels**

Ten of the 11 participants expressed their current confidence and motivation levels as positive, using words like “comfortable” and “feeling good”. Multiple participants mentioned they like the increase in student communication. Participant 1 stated, “I feel more connected to students now and so the overall communication is a bit better.” Participant 5 explained, “I like that students know I am there for them and that they feel more free to contact me.” Participant 7 stated, “I am in a good pattern with posting announcements, and it has increased my presence in my class.” Two participants mentioned items that were negatively affecting their motivation, as the learning management system as “not user friendly” and some technology tools being “unreliable.”
Level Four: Results

The fourth level of the Kirkpatrick model, results, focuses on measuring if the targeted outcomes are occurring after the professional development (Kirkpatrick, 1998). Kirkpatrick recommended using observations and evaluations to identify improvements and benefits from the professional development. Like a classroom walkthrough observation in the regular classroom, a virtual classroom walkthrough observation was conducted in each of the 80 participants’ online classes a week after the second interview. The observations focused on identifying the skills learned in the professional development course and checking if they were being implemented in the online classes. Figure 2 displays the number of participants and the skills displayed in the classes.

Figure 2
Skills Displayed in Online Classes

All six skills taught in the professional development course were evident across the 80 participants’ classes. The most commonly displayed skill was assignment feedback (n = 74,
93%), followed by office hours \( (n = 71, 89\%) \), struggling student email \( (n = 62, 78\%) \), announcements \( (n = 59, 74\%) \), welcome email \( (n = 53, 66\%) \), and discussion boards \( (n = 35, 44\%) \).

During the virtual classroom walkthrough observation, some of the skill areas were explored to view the type of interactions and feedback being provided to students by teachers. Table 3 displays a few examples of announcements, student feedback, and other teacher communications.

Results and impact from the professional development course are not limited to the learning outcomes of the course. Though mentioned in other levels, teachers reported seeing some impacts from participating in the professional development course. Five teachers reported during the interviews that they were seeing increased two-way communications with online students after implementing the skills learned in the professional development course. Five teachers also reported limitations in the LMS that were causing them roadblocks in easier daily implementation.
Table 3

*Teacher Communication Examples*

<table>
<thead>
<tr>
<th>Type of communication</th>
<th>Communication example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Announcement</td>
<td>“Hi students! Here is a reminder of the times for the Exploration meeting in this course. Each exploration is held weekly at the following times: Inequalities: Thursdays at 4pm MT Systems of equations: Thursdays at 4:30pm MT As a reminder, these assignments are required to complete the course and take the final exam. Please contact me if you have any questions.”</td>
</tr>
<tr>
<td>Assignment feedback</td>
<td>“I think you did a great job laying out for the readers the events of the Revolution. I can tell you have a genuine interest in this topic and know a lot about it. I really liked your paragraph where you talked about what America is famous for and tied it back to the Declaration. Very cool!”</td>
</tr>
<tr>
<td>Discussion board</td>
<td>“Great comments! You will also earn 10/20 points when you post a new thread with your own answers to the prompt. Answer all the questions and show your work to get full points. Your main post must not only contain your answers but as well the methods or processes you took to find your answers (i.e. the math justification). Add this and you get full points for the main post only (10/20). You also earn up to 5 points per comment on two other students’ work. Comment specifically on the math in the student responses and critique or clarify it to earn full points. Comments like &quot;Good job,&quot; &quot;I like what you did,&quot; and &quot;Organize it better&quot; will receive no points. You would need at least 2 comments for the other half of the points.”</td>
</tr>
<tr>
<td>Struggling student email</td>
<td>“I wanted to reach out after your last couple assignments and speaking appointment seemed to be a struggle for you. Your receptive and expressive signing skills are beginning to develop. Keep going to the conversation café to practice with our wonderful TAs. Practice your numbers. You can use this website: asl.bz or go to asl.ms to practice letters. Please let me know how I can help.”</td>
</tr>
</tbody>
</table>
Discussion

In this study we collected and analyzed survey responses, pre and posttests, and interview data to better understand how an online professional development course impacted participants' skills and knowledge to effectively communicate with their online students. In this section we discuss our findings in the context of previous research and highlight ideas for those interested in implementing professional development for K-12 online teachers.

The purpose of the online professional development course was to help online teachers improve their knowledge and skills required to effectively communicate with students. These were measured through our instruments. The course evaluation showed that on average, 95% of participants agreed/highly agreed that the online professional development course was engaging, satisfying, and relevant to their jobs. This remaining 5% of participants disagree/strongly disagreed that the online professional development course was engaging, satisfying, and relevant. It may be important that there is follow up with the 5% to learn more about why the professional development was not satisfactory to them. It could be for the same reasons that were mentioned in the interviews that some participants felt they already knew the material and how to successfully implement it and felt it was a waste of their time.

The results of the pre and posttest appear to show that the online professional development course helped all participants increase knowledge of how to effectively communicate with their online students, regardless of their incoming experience or skill levels. All six skill areas showed an average in the score range of 2, “I am trying with mixed results” moving to an average in the score range of 3, “I can do this successfully”. Of the six skills, discussion boards made the largest increase from pre to posttest. This may be since many of the classes taught by the participants do not have discussion boards in them, so there is little
previous experience with them. The only skill that started out in the score range of 3, “I can do this successfully” and did not increase was feedback. This result may be attributed to many of the participants having experience providing feedback in the regular classroom and in their online classes and feeling confident about this skill. These results are consistent with previous research that encourages K-12 online teacher professional development (McAllister & Graham, 2016; Serdyukov, 2015) due to lack of unique pedagogical and technical skills needed in the online environment (Archambault & Larson, 2015; DiPietro et al., 2008; Rice & Dawley, 2007).

Interviews with 11 participants identified several insights to their experience with the professional development course. The first, was that on average, the eleven participants took 3.5 hours to complete the course. The original estimate to complete the course was 5-10 hours. The interviews also let us delve deeper into the participants experiences with learning new pedagogy and technology skills and how it affected their motivation and confidence.

All 11 participants positively commented about the structure and format of the professional development course. Participants mentioned that they liked the research-based format of the lessons and how they were specific to the skills they needed to focus on for the professional development course. This is consistent with previous research that K-12 online teachers should familiarize themselves with literature on best practices (Dawson & Dana, 2018) and professional development should be specific to the unique pedagogy and technology tools used in online environments (Dawson & Dana, 2018; Desimone, 2009). Participants expressed they liked having the professional development online, in the same environment they taught, and felt it was effective and motivational to experience online learning as a student. Researchers have stressed the importance of teachers experiencing online learning as students (Rice & Dawley, 2009; Roy & Boboc, 2016) and professional development be presented online, the same as
online students (Pagliari et al., 2009; Rice & Dawley, 2009). Participants stated that interacting with the course facilitator increased confidence that someone was there to help when needed.

This is consistent with previous research that providing a facilitator, coach, or mentor is an effective way to improve teaching practices (Rice & Dawley, 2009; Zweig & Stafford, 2016). Additionally, participants mentioned they learned a lot from discussions and collaboration activities with their peers. Research has shown when teachers are able to work together online, it can reinforce the collaborative process that is successful in traditional professional development (Dawson & Dana, 2018). Participants expressed positive thoughts related to having good examples and models to follow and used them as guidelines to complete the practice assignments. The literature on regular classroom instruction suggests that teachers who actively participate and have practice-based experience during professional development feel more prepared and report greater satisfaction (Norton & Hathaway, 2015; Zweig & Stafford, 2016).

The virtual classroom observations process allowed the researchers to observe which skills the participants were applying after learning new knowledge and if they match the target outcomes from the professional development. The outcomes from the professional development course included teachers would understand the pedagogy and technology skills behind the six best practices for online teaching and they would then implement them in their online class. Overall, the positive responses that participants gave during interviews, that they were implementing what they learned, did seem to be the case in the observations. While there is room still for improvement, the six skills were evident across most of the classes observed. It was interesting that the highest observable skill was feedback, which was also the highest ranked skill on both the pre and posttest. This may confirm our hypothesis that many of the participants were already comfortable with this skill due to classroom and online teaching experiences. During the
observation process, we did discover that not all 80 participants have discussion boards in their classes. This discovery could be related to discussion boards being the lowest skill observed when not all classes have them. The researchers also discovered that many of the classes may not have had new student enrollments during the observations, which would also result in lower observations of welcome student emails. The virtual classroom observations were done as a one-time observation, a snapshot in time if you will. It would be interesting to see how the observations changed with multiple observations over an extended time.

As a second part of the virtual classroom observations, a few courses were explored for a more detailed look at the communications taking place between teacher and students. The communications examples in announcements, discussion boards, assignment feedback, and struggling student email appear to model good communication qualities. Feedback to students was individualized and specific to the student. Announcements reminded students of upcoming events and ways to improve their performance. The email to struggle students displayed care and offered ways and tools for the student to improve in their online learning experience.

**Recommendations**

Through this experience we have learned that it is just as important to model high level online learning and teaching, as it is to focus on providing good professional development content. We have also learned the challenge is not only designing effective professional development but just importantly demonstrating its’ impact (Rientes et al., 2013). With the currently limited research on professional development for K-12 online teachers, we suggest that identifying best practices is important, but we also recommend a focus on developing and sharing design core principles and evaluation systems for professional development. Until more K-12 online teaching professional development research is conducted, we recommend looking at
existing regular classroom professional development and evaluation methods as models that can be used and adapted.

More specifically, we recommend those designing K-12 online teacher professional development consider including the following design principles that appear to be impactful: (a) provide specific, role related professional development (b) include ways to active involve participants in the learning (c) encourage collaboration between participants (d) include examples and best practice models for reference (e) allow participants to learn from a student perspective (f) allow some flexibility in the learning environment and time requirements, and (g) if a facilitator is provided, model best practices. These recommendations are supported by Desimone’s (2009) five core features of content focus, active learning, coherence, duration, and collective participation.

Designers of K-12 online teaching professional development should also ensure they are using a proven evaluation system to help determine the effectiveness of and guide the improvement of the professional development. We recommend using Kirkpatrick’s professional development model which includes the evaluation steps of reaction, learning, behavior, and results. We liked its’ systematic structure, ease in implementing, and was not a large time investment.

**Limitations**

There are several limitations in this case study that should be addressed by future research. First, this study was conducted at one online learning program, so the findings should not be generalized and should only be considered within the context of this research. Second, this study used self-reported measures for participants’ reported knowledge and satisfaction. This limitation does not allow an accurate reflection of verification of the participants’ self-
assessment responses, making it difficult to know if changes were actual or perceived. Third, observational measures to determine if the acquired knowledge transferred to the online classroom were a snapshot in time, compared to a longitudinal study to explore long term effects. Accountability and extended support could be valuable for teachers in the long-term. Fourth, since teachers were not required to communicate with students prior to the professional development course, an assumption was made that they were not already communicating with students. A pre-observation could have been conducted to measure the level of existing teacher-student communication in the courses.

**Future Implications**

This case study adds to the limited research focusing on professional development for K-12 online teachers. While findings from this study should not be generalized, case studies may be used to bring out details from the perspective of the participants (Yin, 2003). The insights gained from this research has the potential to help others who are seeking to prepare teachers for the uniqueness of teaching online. Future studies on K-12 online teaching professional development need to focus on design, implementation, sustainability, and practices used by those delivering the professional development. Future research should consider what is known for professional development for regular classroom teachers and what might transfer or be adapted for online teachers. Future studies might include some observational measures of knowledge transfer from the professional development to the online learning environment in the long-term. Longitudinal studies of long-term professional development affects could allow a closer look if the professional development influenced student achievement and satisfaction. Future studies related to how online teacher professional development benefits online students may inspire more teachers and online programs to offer and participant in professional development.
Conclusion

With the growth of K-12 online learning, there is a need for regular and reinforced professional development that helps online teachers navigate the unique nature of the online environment. While most online teachers will have face-to-face teaching experience, there is still a need to help them understand the nature of online student to teacher interaction and provide them with the right tools to be successful. Research on professional development for K-12 online teachers is currently limited. This case study found that an online professional development course focused on how teachers could more effectively communicate with their online students was a positive and effective experience for participants. Participants specifically noted that the course structure, lessons, and assignments increased their online teaching knowledge and skills. As well, it appeared that the opportunity to collaborate with other online teachers and the ability to learn as an online student also had an impact. One challenge of designing effective professional development is not just focusing what will be learned but focusing on how it will be learned. The second challenge is not only designing effective professional development but also being able to evaluate and demonstrate the impact it has had so improvements can continue.
References


https://doi.org/10.24059/olj.v16i2.258


APPENDIX A

Institutional Review Board Approval Letter

Memorandum

To: Heather Leary
Department: BYU - EDUC - Instructional Psychology & Technology
From: Sandee Aina, MPA, IRBIP Associate Director
Wayne Larsen, MAcc, IRB Administrator
Date: July 27, 2021
IRB#: IRBX201-233
Title: Moving from Reactive to Proactive Communication in K-12 Online Teaching

Brigham Young University’s IRB has approved the research study referenced in the subject heading as exempt level, categories 1 and 2. This study does not require an annual continuing review. Each year near the anniversary of the approval date, you will receive an email reminding you of your obligations as a researcher and to check on the status of the study. You will receive this email each year until you close the study.

The study is approved as of 07/27/2021. Please reference your assigned IRB identification number in any correspondence with the IRB.

Continued approval is conditional upon your compliance with the following requirements:

1. A copy of the approved informed consent statement can be found in IRIS. No other consent statement should be used. Each research subject must be provided with a copy or a way to access the consent statement.
2. Any modifications to the approved protocol must be submitted, reviewed, and approved by the IRB before modifications are incorporated in the study.
3. All recruiting tools must be submitted and approved by the IRB prior to use.
4. Instructions to access approved documents, submit modifications, report adverse events, can be found on the IRB website. IRB guide: https://irb.byu.edu/iris-training-resources
5. All non-serious unanticipated problems should be reported to the IRB within 2 weeks of the first awareness of the problem by the PI. Prompt reporting is important, as unanticipated problems often require some modification of study procedures, protocols, and/or informed consent processes. Such modifications require the review and approval of the IRB. Please refer to the IRB website for more information.
APPENDIX B

Instruments

Course Evaluation

Q1 The professional development course design allowed me to be actively involved in and contribute to my learning.

☐ Strongly Disagree  ☐ Disagree  ☐ Agree  ☐ Strongly Agree

Q2 What I have learned in this professional development course will be applicable in teaching online.

☐ Strongly Disagree  ☐ Disagree  ☐ Agree  ☐ Strongly Agree

Q3 I am satisfied with my experience in this professional development course. The course evaluation used a four-point scale.

☐ Strongly Disagree  ☐ Disagree  ☐ Agree  ☐ Strongly Agree
Pre and Post Self-Assessment

Q1 I can establish my presence in my course on a regular basis via announcements, feedback, email, online office hours, and various other methods.
☐ Never done this.
☐ I am trying with mixed results.
☐ I can do this successfully.
☐ I am an expert and can teach others.

Q2 I understand the pedagogy behind sending students a welcome email and can send an effective welcome email to let students know I care and want to connect with them.
☐ Never done this.
☐ I am trying with mixed results.
☐ I can do this successfully.
☐ I am an expert and can teach others.

Q3 I understand the pedagogy behind sending a struggling student an email/message and can send an effective email/message to let students know I see their struggles and want them to be successful.
☐ Never done this.
☐ I am trying with mixed results.
☐ I can do this successfully.
☐ I am an expert and can teach others.

Q4 I understand the pedagogy behind posting weekly announcements and can post an effective announcement to keep students encouraged, revisit course expectations, and focus on upcoming assignments.
☐ Never done this.
☐ I am trying with mixed results.
☐ I can do this successfully.
☐ I am an expert and can teach others.

Q5 I understand the pedagogy behind discussion boards and can participate in discussions to act as a mediator to help guide and focus the discussion.
☐ Never done this.
☐ I am trying with mixed results.
☐ I can do this successfully.
☐ I am an expert and can teach others.

Q6 I understand the pedagogy behind meaningful feedback and can provide student feedback that is positive, specific, and identifies strengths and weaknesses.
☐ Never done this.
☐ I am trying with mixed results.
☐ I can do this successfully.
☐ I am an expert and can teach others.

Q7 I understand the pedagogy behind virtual office hours and can offer office hours that promote and encourage a safe, inviting opportunity for students to ask questions
☐ Never done this.
☐ I am trying with mixed results.
☐ I can do this successfully.
☐ I am an expert and can teach others.
Interview 1

Q1 How long have you taught in-person?

Q2 How long have you taught online?

Q3 About how many hours did you spend in this course, including all the readings and assignments?

Q4 What areas do you plan to change in communicating online with your students?

Q5 How did the professional development impact your pedagogical knowledge on communicating with students?

Q6 How did the professional development impact your technical knowledge on communicating with students?

Q7 How did the professional development impact your confidence/motivation to effectively communicate with students?
Interview 2

Q1 How have you done overall in implementing the things you learned in the professional development course?

Q2 What has helped or hindered you from implementing them?

Q3 How are your confidence/motivation levels in effectively communicating with your students?
As K-12 online learning continues to expand, so will the need to provide professional development for K-12 online teachers. When designing professional development for online teachers it is important to recognize the uniqueness of teaching in the online environment. While many online teachers have regular classroom teaching experience, these skills do not always transfer to the online classroom. There is a need to provide online teachers with online teaching competencies, including online pedagogy and technology skills. It is also important to design professional development based on their specific role and responsibilities, addressing the model of online learning and tools used in their school or program. One common skill needed across online learning, which was the focus of this dissertation, the need to understand the unique nature of online communication that presents itself due to the distance between student and teacher.

This dissertation’s literature review discovered that few K-12 online teaching studies outline the competencies and skills needed to address opportunities for online teaching professional development. More importantly, the review provides a foundation with a set of best practices that could be used to build a professional development for new and current online teachers. There is little to no research that attempts to connect research-based competencies for online teaching to online teaching practices that could be taught in a professional development course.

To address the gap from the first article and provide teachers with a better understanding of the competencies needed by K-12 online teachers to effectively communicate with online students, the second article shares the development and design of an online professional course. The professional development course was designed to present teachers with emerging theories
and best practices in online teaching and shares why the understanding of the pedagogy is important to help them be better online teachers. The course also teaches them how to use the online tools available to them, which will help facilitate learning and enhance the learning experience of their students. This design case shows the importance of exploring what is known about professional development for regular classroom teachers and what might transfer to K-12 online teachers. The use of Desimone’s (2009) core features seems to align well with what is known about professional development for K-12 online teaching.

The third article outlines the implementation of the professional development course shared in article two. This case study found that participants felt that the course structure, lessons, and project-based assignments contributed to an impact of their learning. Participants also noted that peer collaboration and the ability to learn as an online student increased their motivation and learning. Using the Kirkpatrick (1998) evaluation model, this study filled another gap in the literature by sharing results of the impact of the professional development on teaching practices in their online classes.

There is still much to uncover regarding effective ways to help online teachers learn the competencies needed for online learning. We must continue to research and provide insights in designing high quality professional development and evaluating the impact it has on online teachers and students.