Teachers' Perceptions of an Online Social Network as an Instructional Platform: The Impact of an Edmodo-Based Professional Development Workshop

Ashley Hodge

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TEACHERS’ PERCEPTIONS OF AN ONLINE SOCIAL NETWORK AS AN INSTRUCTIONAL PLATFORM: THE IMPACT OF AN EDMODO-BASED PROFESSIONAL DEVELOPMENT WORKSHOP

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By
Ashley Hodge

May 2015
TEACHERS’ PERCEPTIONS OF AN ONLINE SOCIAL NETWORK AS AN INSTRUCTIONAL PLATFORM: THE IMPACT OF AN EDMODO-BASED PROFESSIONAL DEVELOPMENT WORKSHOP

By

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ABSTRACT

TEACHERS’ PERCEPTIONS OF AN ONLINE SOCIAL NETWORK AS AN INSTRUCTIONAL PLATFORM: THE IMPACT OF AN EDMODO-BASED PROFESSIONAL DEVELOPMENT WORKSHOP

By
Ashley Hodge

May 2015

Dissertation supervised by Dr. Misook Heo

Today’s students are learning and communicating in increasingly digital ways, which is challenging instructors to rethink their practice in order to meet their students’ needs. These needs include instant access to information, student-centered learning, and control over their own learning. With the rapid adoption and progression of technology in education, understanding instructors’ perceptions of technology that supports digital-age learners becomes important, as instructors’ perceptions can influence the effectiveness of technology integration. This study examined one particular technology, the Online Social Network (OSN), using Edmodo in light of how it is perceived as an instructional platform. Additionally, whether the OSN supports a professional learning community was investigated, and the influence of this type of professional development design on the participants’ perceptions was analyzed.
Generally, the OSN was perceived as an instructional platform particularly for instruction aimed at student-centered and blended learning. It was evident that the OSN is capable of supporting a professional learning community, as participants in this study thoroughly and collectively worked to design student-centered learning modules within the platform while at the same time inquiring on topics pertinent to their professional growth. The findings provide relevant information for instructors looking to implement a platform that supports a student-centered approach to instruction, as well as, an example for administrators seeking a platform that supports a professional learning community. With this information, it is hopeful that the educational practice can improve, as instructors perceptions are better understood and their desire to participate in an online learning community is manifest.
DEDICATION

This dissertation is dedicated to the love and support of those nearest and dearest to my heart. My husband Joshua, you grounded me and brought me back to reality when I needed it most. You stood by my side and celebrated even the smallest landmarks throughout this process. And you brought joy and light into my life when I felt as if there was no escape. You, my darling, are a testament to true love and devotion. Thank you, thank you, thank you!

I would be remiss not to mention my dog, Marley. Although his encouragement was unconventional, there was not a day that went by that he did not put a smile on my face and that was cherished more than he will ever know.

Finally, to my family and friends, both near and far for providing encouragement, expressing interest in my journey, and simply being there throughout the years, I sincerely thank you. You each have taught me the value of commitment and that I can do anything I set my mind to. To my mother and father for showing me how to be a hard worker, teaching me the value of dedication, and for being my greatest admirers in life; you are and always will be a great inspiration.
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My sincere gratitude to Dr. Misook Heo for enduring with me as my advisor throughout the research and writing of my dissertation. Her guidance, efficiency and general care throughout the years are much appreciated and each greatly impacted my ability to succeed. She provided constant and meticulous support, and for that I am unquestionably fortunate and grateful to have received.

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Finally, to professors Dr. David Carbonara, Dr. Jason Margolis, and Dr. Nihat Polat; appointed as their graduate assistant throughout my doctoral studies, I attribute my growth as a researcher to each of them. I am grateful for the opportunity they afforded me in publishing scholarly manuscripts and their genuine guidance to become a stronger researcher.
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Chapter I

Introduction

As technology continually evolves, it impacts ever more significantly on the way society learns and communicates (Hilbert & Lopez, 2011; Schaffer, 2001). Technology explicitly transforms the way individuals think (Schaffer, 2001), which has impacted the way human beings’ minds are stimulated and how they function (Oblinger & Oblinger, 2005; Palfrey & Gasser, 2008; Prensky, 2001; Tapscott, 2009). For example, individuals who have continually been exposed to technology throughout their lives are more inclined to process information in a non-linear fashion (Baker, Matulich, & Papp, 2007; Oblinger & Oblinger, 2005). The technology revolution of the 20th century brought the rise of innovative technologies, including online learning and online social networks (OSNs). These innovations have influenced younger generations to speak and learn in a different language, that is digital and technological (Prensky, 2001; Schaffer, 2001).

Younger generations now view technology, in particular social networking, as an integral part of everyday life (Oblinger & Oblinger, 2005) and expect technology to be a natural part of the learning process (Greer & Sweeney, 2012). In order to maximize younger generations’ educational experiences, supporting a profusion of students’ personal experiences in education is important (Dewey, 1902 & 1915). Traditional instructional processes where the instructor practices direct instruction (e.g., transmission learning) (Freire, 1968 & 1993) still exist however; this becomes an issue because direct instruction does not well coincide with the way today’s students are communicating and learning. Constant investigation on educational technologies that can augment student-centered teaching and learning and promote a learning community, thus, is necessary as
they continue to evolve. One of the educational technologies believed to have the capability to promote a learning community and enhance the social and digital needs of today’s students is the OSN (Baird & Fisher, 2005; Rennie & Morrison, 2013). The simple adoption of educational technology, however, will not make student-centered teaching and learning work as instructor dispositions, such as readiness to use, beliefs on, proficiency in, and perceptions of educational technology, have been evidenced to impact the effectiveness of technology integration on student learning (Bitner & Bitner, 2002; Ertmer & Ottenbreit-Leftwich, 2010; Hew & Brush, 2007; Inan & Lowther, 2010; Vannatta, Beyerbach, & Walsh, 2001; Wozney, Venkatesh, & Abrami, 2006).

Understanding instructor perceptions of OSNs as instructional platforms is, therefore, critical for effective integration of OSNs that can support social learning for today’s learners. Unfortunately, there exists limited research on instructors’ perceptions of OSNs for teaching and learning; studies that identify ways to effectively use OSNs in teaching and learning may address this gap in the literature.

Albert Bandura’s theory of social learning (1962, 1977) assumes that through observing the behaviors of others, or observational learning, knowledge is developed. This theory has been adopted throughout the years and is pervasively used in teaching and learning (Ormrod, 2008). Bandura believes human behavior is influenced by continuous and common interactions that are guided by cognitive and behavioral foundations. Social learning is rooted in intrinsic learning (e.g., learning for one’s own sake), observation, which includes someone or something that models a particular behavior and a student who observes the behavior, and perceived high-levels of self-efficacy (e.g., a strong belief that one can complete a particular task) (Ormrod, 2008).
This theory has long been utilized in education and is responsible for many of the developments in traditional face-to-face (F2F) education (Ormrod, 2008).

Still up for debate is how to effectively facilitate social learning among students who are more inclined to communicate in a digital manner. As society moves down the trajectory toward blended learning, online learning (OL), and an increased use of educational technology, meeting the needs of today’s students becomes important. Often referred to as digital-age or millennial learners, and the Net/Y Generation, modern-day students have grown up in a world comprised of digitally-based communication and learning and are revealing a desire to construct knowledge by way of a learning community, where members collectively share and obtain information (Le Rossignol, 2009). Some instructors and instructional designers look to OSNs to support a collective community of learners while stimulating curiosity and communication among students (Fisher & Baird, 2005; McLoughlin & Lee, 2010; Rennie & Morrison, 2013). Facebook and Twitter, for example, have been successfully utilized within education; Facebook has demonstrated its ability to increase student-student and student-instructor interaction, promoting collective communities and social interface (Munoz & Towner, 2009) and it has been suggested that Twitter can enhance both student and instructor engagement while supporting more gainful learning outcomes (Junco, Heibergert, & Loken, 2010). Research suggests that OSNs engage students in informal learning and promote interaction and socialization among students (Leskovec, Huttenlocher, & Kleinberg, 2010; Livingstone & Brake, 2010; Roblyer, McDaniel, Webb, Herman, & Witty, 2010). Technology has enabled society to build immense and powerful OSNs, and these networks have been linked to socially engaging learning experiences and recognized as a
setting in which natural learning can occur (Barczyk, Nareddy, & Duncan, 2012; Ma & Yuen, 2010).

**Statement of the Problem**

Societal acceptance of OSNs is apparent in today’s world, as the public is spending over 700 billion minutes per month on Facebook (Hurn, Chamberlin, Hambright, Portwood, Schat, & Bevan, 2011). Although the breadth of opportunity social networks lend to socialization and interaction is recognized outside of education (Leskovec et al., 2010; Roblyer, et al., 2010) practitioners of education exhibit conflicting perspectives regarding the adoption of OSNs as instructional platforms. Those who support social media in the classroom have found it promotes creative, active and responsible learning (Dalsgaard, 2006; Livingstone & Brake, 2010; Waddington, 2011) yet, 72% of school districts firewall OSNs because they believe OSNs hinder learning (Waddington, 2011).

There have been instances where negative implications regarding OSNs in education have been documented (e.g., Dohn, 2008; Notley, 2008; Sharples, Graber, Harrison, & Logan, 2009). The surrounding skepticism suggests the freedom and vulnerability of OSNs to be unsafe and a potential threat to privacy (Bonneaua, Anderson, & Danezis, 2009; Jones & O’Neill, 2010; Notley, 2008). Research has suggested that OSNs sustain bullying, racism, and violent materials among younger generations as well (Notley, 2008); OSNs have also been recognized as difficult to implement because of the digital divide and, in some cases, there exists a fear of learning a new technology among instructors (Dohn, 2008).
Regardless of the aforementioned negative connotations associated with OSNs, there have been studies highlighting the benefits of social networks (Maranto & Barton, 2010; Notley, 2008; Roblyer et al., 2010; Sharples et al., 2009; Waddington, 2011). Rather than banning students from OSNs, advocates believe appropriate implementation strategies can promote safe, responsible learning and shape model digital citizens (Maranto & Barton, 2010; Notley, 2008; Roblyer et al., 2010; Sharples et al., 2009; Waddington, 2011). OSNs are proven to be successful when facilitating self-regulated learning (Dabbagh & Kitsantas, 2012), which is a person’s ability to manage his/her own learning by setting goals, observing the content, forming conclusions, and acting in response to their learning (Bandura, 1986; Schunk, 1989, 1996), and, when implemented systematically, can promote social interaction (Leskovec et al., 2010; Livingstone & Brake, 2010; Roblyer et al., 2010). Techniques like self-reflection, communities outside the classroom, and student-guided discussions have shown their impacts on students’ self-regulation skills (Fisher & Baird, 2005), and each of these techniques can easily be facilitated within an OSN. In this regard, withholding OSNs prevents students from a potentially effective student-centered learning tool (Fiedler & Valjataga 2008; Friedman & Hershey, 2011). OSNs have continued to develop and have perceivably proved their dominance in our society as an interactive social medium. The question now remains as to how OSNs are perceived by instructors as instructional platforms.

Research supports both advocates and skeptics of OSNs but it is difficult to argue against OSNs’ presence in our society. It has been found that 90% of adolescents use the Internet with over half utilizing OSNs (Waddington, 2011). OSNs are proving to be effective instructional platforms in some cases while having no effect in others, which
brings into question the reason for this discrepancy. While OSNs promote social interaction, simply implementing OSNs for teaching and learning will not necessarily result in social interaction among students (Kreijns, Kirschner, & Jochems, 2003); identifying how to effectively incorporate OSNs as instructional platforms and providing an appropriate balance between cognitive and social aspects of learning can further be examined (Kreijns et al., 2003). An effective infrastructure and complementary support may provide instructors with the necessary proficiency and readiness to utilize OSNs and perhaps influence instructors’ perceptions of OSNs, as educators are often unsure of how to take advantage of these inter-connected systems as instructional platforms.

A study examining social media adoption within 4-year institutions across the United States revealed that while 100% of these institutions were utilizing social media in some capacity (Barnes & Lescault, 2011), faculty members who were interviewed throughout the study were more likely to use OSNs for personal use rather than for educational purposes (Barnes & Lescault, 2011). Educational protocols are being re-positioned, nonetheless, to facilitate online, hybrid and collaborative learning models (The New Media Consortium Report, 2012). Instructors may benefit from a shift in practice in order to better support learners in managing immense amounts of information in what is considered to be the “knowledge era” (Garrison, 2011). OSNs, positioned as learning communities, can support the emerging didactic perspective that underscores the importance of facilitating both meaningfully and collectively constructed knowledge (Garrison, 2011). Instructors considerably influence the learning environment (Garrison, 2011); understanding their perceptions of instructional platforms, thus, could be an
important step in enhancing the effectiveness of integrating platforms that benefit the learning process.

Many researchers have focused on students and the use of OSNs in learning environments (Lockyer & Patterson, 2008; Veletsianos & Navarrette, 2012; Yuen & Yuen, 2008); however, there is limited insight into instructors’ perceptions of OSNs. Specifically, instructors’ perceptions of OSNs as instructional platforms are limited in the literature. Given that the voice of the instructor is lacking from relevant literature (Veletsianos & Navarrete, 2012), understanding instructors’ perceptions of OSNs as instructional platforms and whether instructors’ personal background and experience with technology influences their perceptions warrants examination. Besides, studies that enhance our understanding of instructor perceptions of OSNs in education can increase the potential of OSNs being integrated within learning environments; this, in turn, will contribute to uncovering the potential of OSNs to provide students with a meaningful and socially interactive learning experience.

**Purpose of the Research**

The teaching and learning process is evolving to accommodate the needs of today’s learners. Various educational technologies have been studied for their impacts on student learning and/or have been used to enhance student learning. This study focuses on the effectiveness of the OSN used as an instructional platform, which promotes a professional learning community. Despite their proven dominance in society outside of the education field, OSNs have been delimited in education by differing perspectives, misunderstandings of use, and general resistance to change among instructors. The
purpose of this qualitative case study is, therefore, to understand instructors’ perceptions of OSNs as instructional platforms, which promotes a professional learning communities. This study used a professional development workshop, which was designed and developed to introduce an OSN as an instructional platform and to promote a learning community. The workshop included the basic navigation features of a chosen OSN for the study, how to translate pedagogy to the use of OSNs and how to assess student learning within an OSN. Traditional education theories (e.g., social learning theory, cognitive learning theory, and behavioral learning theory), best practices, and multimedia learning principles served as the foundation for this framework. This framework was anticipated to provide instructors with the necessary support for integrating technology while promoting a professional learning community; the specific technology being an OSN.

**Research Questions**

In order to reveal instructor’s perceptions of an OSN as an instructional platform, which promotes a professional learning community, this study is guided by the following research questions:

1. How do k-12 instructors perceive the OSN as an instructional platform?
2. To what extent does the OSN support a professional learning community?
3. How do instructors’ perceptions change over the course of the online workshop?

**Significance of the Study**

This study aims to contribute to the general understanding of OSNs as an educational technology for teaching and learning. Specifically, this study focuses on the
following areas in which it contributes to the literature: instructors’ perceptions of OSNs as instructional platforms, whether the OSN promotes a professional learning community, and if the design of the professional development influences the instructors’ perceptions. Considering the voice of the instructor has been minimally heard in pertinent literature (Veletsianos & Navarrete, 2012), the current research is anticipated to contribute to an understanding of instructors’ perceptions of OSNs as instructional platforms to improve their practice to parallel the needs of today’s students. Additionally, examining the functionality of the OSN as designed to support a professional learning community serves as a foundation for administrators to promote more effective professional development. Considering their dominance in our society (e.g., Waddington, 2011) and the presence of more digitally-inclined learners (e.g., Prensky, 2001; Schaffer, 2001), understanding instructors’ perceptions of OSNs will support the integration process and the effectiveness of OSNs being used for teaching and learning.

**Limitations and Delimitations of the Study**

While OSNs are the technology of focus in this study, it should be recognized that as with any other technology, OSN use and preference is dynamic. The popularity of OSNs in general, or of any specific OSN, will eventually change. This does not indicate that OSNs are becoming obsolete, however, as technologies are continually being reinvented. Usage rates of OSNs will, therefore, change with the creation of newer technologies or modernization of OSNs. As new OSNs emerge and gradually change over time it is important to focus not on how the number of users increases and decreases but on how present OSNs are and will continue to be in society. The significance of this study exists in the understanding on how society is evolving to desire
more social forms of learning and how online learning can support this need through the
use of OSNs.

Considering the workshop was self-paced and asynchronous, the researcher recognizes the influence that this could have on the data collection and analysis. First of all, there are instances where participants might have interacted privately regarding the online workshop (e.g., through private messages or email) that was not made available to the researcher. Even with the best effort of the researcher, it is possible that some communications might have been interpreted differently than were intended by the participant and therefore, it is thus asserted that the results provided are one understanding of the findings.

In addition to this particular understanding, the study was intended to investigate one specific group of instructors from a select school district. The workshop was designed and intended for school districts that are well equipped with and knowledgeable of educational technology. This specific type of school district was targeted to keep the focus of the study on the perceptions recorded in the online workshop and not on how to participate in online professional development. It is, therefore, suggested to bear this in mind when generalizing the results; the school districts who participated were top-performing schools in a rural north eastern state. Considering this, results may vary in a lower-income or lower-performing school.

Furthermore, the findings regarding instructors’ perceptions of implementing the OSN may differ from how students respond to the implementation of the OSN as an educational technology. Although this study examined the perceptions of instructors, future studies may benefit from analyzing students perceptions; revealing student
reactions to the implementation process could provide further information regarding the use of OSNs in education that was unable to be entirely represented during the examination of instructor perceptions. Within the current study, however, student reactions were not documented.

**Definition of the Terms**

**Online Learning Environment (OLE)**

An OLE is a virtual space for which learning can occur and consists of at least 80% of online content (Allen & Seaman, 2011). It is rare that students and instructors will meet F2F throughout the duration of an online course (Allen & Seaman, 2011).

**Online Social Network (OSN)**

An OSN is a web-based service that allows users to communicate with other individuals that are within their extended network, OSNs usually consist of a profile page unique to each user, connectivity characteristics of its users (e.g. a list of a specific users’ connections within the network), and capabilities for navigating within the network (Boyd & Ellison, 2007).

**Blended Learning**

Blended learning is a crossbreed of both face-to-face and online learning. It allows for learning to occur beyond the brick-and-mortar walls of traditional classrooms and involves some type of educational technology to facilitate the learning beyond the classroom.

**Theory of Social Learning**

Albert Bandura’s (1989) theory of social learning assumes that through observing the behaviors of others, or observational learning, knowledge is developed. Bandura
believes human behavior is influenced by continuous and common interactions that are
guided by cognitive and behavioral foundations.

**Intrinsic learning**

Intrinsic learning means learning for one’s own sake, which occurs when the
student’s knowledge is expanded due to inherent motivation(s) (Ryan & Deci, 2000).
Intrinsic motivation is often correlated with meaningful learning which makes it a vital
part of the recipe for effective instruction (Ryan & Deci, 2000).

**Self-regulated learning**

Self-regulated learning requires the student to be responsible for managing their
own learning with the support of the facilitator. While achieving self-regulated learning,
the student is capable of setting their own goals, observing the content, making their own
inferences and forming their understanding of the content and reinforcing and punishing
themselves when they do or do not meet their proposed performance goals (Bandura,

**Social presence**

An individual’s social presence is determined by the extent to which that
individual is perceived to be pertinent in a particular interaction and the significance of
the interpersonal connection is dependent on the perceived social presence (Short,
Williams, & Christie, 1976).

**Pedagogy/pedagogical curriculum**

Pedagogy is the formal profession of teaching and the methodology behind
curriculum design, instructional techniques, and learning experiences. Pedagogical
curriculum provides a framework for the active practice of educating students.
Chapter II

Literature Review

Online learning

Defined

Online learning has long been revolutionized since it originated in the form of postal mail, dating back to the 18th and 19th century (Bower & Hardy, 2004; Peters, 1998). Correspondence learning was the technical term used for sending educational lessons to those wanting to learn at a distance (Bower & Hardy, 2004). Using print sources, educators would accommodate those who lived in remote areas or had other difficulties in accessing F2F learning by sending lessons via the postal service (Bower & Hardy, 2004). Isaac Pitman was among the first to develop a postcard with learning content that was mailed to the students for transcription; his idea spread so rapidly that correspondence colleges were developed in the mid 1800’s. As the world became industrialized, correspondence learning eventually took on the alias distance education; areas with already established institutions were at an advantage because they were more equipped with resources and funds to support distance learners at that time (Bower & Hardy, 2004; Moore & Anderson, 2003). A desire to learn at a distance became apparent among the educationally deprived regions (Moore & Anderson, 2003). With the advent of the technology revolution in the late 20th century, distance education moved from print mediums to technology mediums for communicating information (Bower & Hardy, 2004). Ranging from audio to video based communication, distance education is now associated with online mediums for learning, with the Internet acting as the connection for students and instructors to have an educational experience. Currently, there is a range
of online courses, taken at a distance, that are implemented in K-12 settings, higher education curriculum, corporate training programs and the like.

The International Association for K-12 Online Learning (iNACOL) (2011) estimated 1.8 million students are enrolled in at least one online course, within the United States and reported online learning to be most accessible in North America, Western Europe, Asia, and Australia/New Zealand. Across the globe, urbanized areas tend to offer more opportunity and access to online programs (iNACOL, 2011). With a 40% annual growth rate and a breadth of opportunities for non-traditional students and families, online programs are evolving to provide an adaptable and personalized learning environment (Patrick & Vander Ark, 2011). OL programs have made a considerable impact on education and continue to mature (Watson, 2008). These learning programs are housed in OLEs, which facilitate knowledge construction through responsive and interactive technology-based mediums (Colorado & Eberle, 2010). Delivery of content may be implemented in an asynchronous, synchronous or hybrid manner and it is suggested that to qualify as an online course at least 80% of content must be given online (Allen & Seaman, 2011). The term ‘synchronous’ implies immediate presence of the students and instructors within the online environment, whereas ‘asynchronous’ involves self-paced learning where instructors provide the resources necessary for the students to access and complete on their own time, although required completion dates are not uncommon. The first signs of self-paced learning are documented in Keller’s (1968) development of the Personalized System of Instruction (PSI), which was intended for classroom-based instruction. This idea was founded to support differentiated learning and consists of learning modules that guide students through the learning process (Keller,
The PSI used a different approach regarding lecturing and modeling of material; the PSI uses these techniques to motivate students rather than emphasize significant points of information. According to the PSI, the instructor is responsible for selecting the content, structuring the way the content is to be presented, developing assessment materials, and evaluating the students’ progress; the students were supported by course proctors, who were responsible for communicating and encouraging students in times of need (Keller, 1968). Keller’s (1968) work recognized the changing role of the instructor from authoritative to facilitative, and society has witnessed that role grow even further as OL continues to develop. Keller’s model dominated behavioral research in the 70s and 80s; yet it seemed nonexistent in the 1990’s (Eyre, 2007). Considering its success with improving student learning (e.g. Gibbs 1992; Hambleton, Foster, & Richardson, 1998; Jacobs, 1983; Keller, 1968; Kulik, Kulik, & Cohen, 1979; Kulik & Kulik, 1989), the PSI has been modified into the computer-aided personalized system of instruction (CAPSI) (Pear & Crone-Todd, 1999) and is now a suggested technique for designing and structuring OL courses (Cracolice & Roth, 1996; Grant & Spencer, 2003). There are many terms under the umbrella of OL: distance learning, e-learning, virtual learning and other comparable designations are often used in the same context. Each term shares several common characteristics, including freedom from co-location between the students and instructor, a technology-based vehicle for sharing information and learning, and support that sustains the students’ capabilities to perform (Ally, 2004). For the purposes of this literature, the term online learning will be used to cover variations of the term.
Advantages and disadvantages

Early researchers believed that successful learning experiences were not affected by technology, as the sole purpose of the technology was to deliver the content (Clark, 1983) and the desired learning outcomes were only achieved by systematic strategy and content (Schramm, 1977). Initial research on learning from media revealed that technology did not influence knowledge construction and that instructional and student characteristics may be the determining factors in student achievement (Clark, 1983). This rationale was later debated as research showed technology to actually enhance student motivation and facilitate student interaction (Kozma, 1994).

Despite early findings that associate OLEs with social isolation and ineffective learning experiences (Bennett et al., 1999), more recent research found effectively designed online environments to provide an engaging learning experience that promotes higher learning (Revere & Kovach, 2011). An effectively designed online curriculum can also address differentiated learning preferences and achieve desired learning outcomes (Ally, 2004), resulting in a more personalized learning experience. These environments are, in fact, transforming education from static and routine instruction to differentiated instruction that adapts to fit many schedules and learning needs (Patrick & Vander Ark, 2011). In addition to fostering interaction and personalized learning experiences, some researchers believe educational productivity may be enhanced with online learning (U.S. Department of Education, 2011). It is believed that those who reinforce the potential outcomes of online learning are affiliated with online courses in some capacity and those who are not subjected to online learning are less inclined to
support its capabilities (Allen & Seaman, 2011). The reported skepticism may, therefore, be in part to lack of experience with or exposure to the field of online learning.

Although it continues to improve, online learning still faces some challenges in integrating technology with content, providing quality instruction at a distance, and finding properly trained instructors to deliver the content online (Johnson & Aragon, 2003; Lee & Hirumi, 2004; Revere & Kovach, 2011). Many learning platforms have been developed for online content delivery, yet these environments are not reaching a certain level of desired engagement (Revere & Kovach, 2011). Some reasons for this may include confusion resulting from students being exposed to too many modes of communication at once (i.e. text/chat log, audio from the live class, and information from the content board), missing nonverbal communication that does not occur in an audio-based online environment, and unwanted anxiety caused by technological problems that can occur in online environments (McBrien, Jones, & Cheng, 2009). Lack of feedback, unclear expectations and minimal support in OLEs may also be responsible for low levels of student engagement (Palmer & Holt, 2009). Research has detected a lack of student-centered approaches being utilized in online environments, which may be attributed to an absence in instructors’ preparedness to teach in online settings and their inability to keep up with rapidly changing technology (Lee & Hirumi, 2004; Revere & Kovach, 2011). Considering the challenges associated with engaging students in OLEs, it may be beneficial to implement other mediums that can enhance online communication, as interaction is a powerful segment of online learning (Bodomo, 2008). The various types of and ways to promote interaction will briefly be examined to further understand how to provide effective and meaningful online learning experiences.
**Interaction**

Interaction has become a central focus in OL research, as it has been evidenced to impact the learning experience (Fulford & Zhang, 1993; Garrison & Cleveland-Innes, 2005; Gunawardena & Duphorne, 2001; Swan, 2001). Considering interaction is a critical part of online learning, more systematically designed interaction has been recommended (Garrison & Cleveland-Innes, 2005); interaction is not to be confused with interactivity, however. Some researchers believe defining interaction is no different than defining interactivity (see Gilbert & Moore, 1998) and some are in opposition, supposing that these terms can be differentiated in an online environment (see Wagner, 1994). In distinguishing between the terms, interactivity involves the attributes of a technology whereas interaction occurs when two or more objects (e.g., individual-individual, individual-system) reciprocally influence one another (Woods & Baker, 2004). Therefore, the technology itself supports interactivity in which different modes of interaction can occur (Roblyer & Ekhaml, 2000).

Moore (1989) pioneered the role that interaction plays in online education today by identifying three points of contact for students: student-teacher, student-content, and student-student. According to social constructivist foundations, interactions can influence deeper learning and higher-level thinking (Ormrod, 2008; Palincsar, 1998), and the importance of observing and learning from others is emphasized in social learning theory (Ormrod, 1999). As the medium for interaction differs in OLEs to traditional F2F classrooms (Anderson, 2003) its position in online settings has been studied closely. Social constructivists believe the instructor (or an expert model) plays a critical role in mediating interactions among students (or novices) and guiding student learning within
the communicative context (Palincsar, 1998). Considering interactions can occur both socially and cognitively, instructors and curriculum designers may guide students to socially interact with others involved in the course and cognitively interact with the material.

In an online environment, human interactions are mediated by technology. For seamless interactions via online, thus, technology should be able to support the individual to access and interact with the information presented by the technology (Ally, 2004), just as the individual would naturally access and interact with information provided face-to-face by an instructor or peer. This technology mediation is often referred to as student-interface interaction. Developed by Hillman, Willis and Gunawardena (1994), this type of interaction is prerequisite for the other three types of interaction (identified by Moore), as the learner must interact with the technology in order to interact with any content, other students, or instructors present in the technology medium (Chou, 2003). Instructors’ interaction with the technology is equally important as it allows them to monitor students’ activity (Yang, Yeh, and Wong, 2010). This type of interaction can ultimately influence student interaction, and instructors who neglect to interact with the technology medium may impede the learning process.

Learning is a dynamic process and can be influenced by continual interaction and meaning negotiation (Sharples, Taylor, & Vavoula, 2007). Although interactions are considered to be active behaviors, the quality rather than the quantity of interaction is believed to be an essential part of providing meaningful learning (Garrison & Cleveland-Innes, 2005). For example in a study examining the perspectives of online students, researchers found discontent among the participating students regarding the absence of
F2F interaction (Stodel, Thompson, & Macdonald, 2006); the authors reported that the quality of the online interaction may influence the way the online environment is perceived. In fact, passive interactions are identified as indication of misunderstanding while active interactions are recognized as indication of knowledge construction (see Yang et al., 2010). In addition to social interactions, facilitating particular forms of presence (e.g., social, cognitive, teaching) can also enhance the online learning experience, making the interactions more substantial (Garrison & Cleveland-Innes, 2005). Simply stated, presence is determined by an individual’s perceived degree of connectedness to, sense of being in and ability to interact with others in an online course (Picciano, 2002). In an online environment, a mix of cognitive, social and teaching presence is suggested to achieve a constructivist approach to learning (Garrison & Arbaugh, 2007).

**Social presence**

Social presence is measured by the extent to which people feel socially aware of each other (Richardson & Swan, 2003). There have been studies demonstrating a positive relationship among the level of perceived social presence and the degree of online learning that occurs (Gunawardena, 1995) and communication mediums’ effectiveness is influenced by the degree of social presence (Richardson & Swan, 2003). This implies that students’ sense of connectedness in OLEs is subject to their perceptions of OLEs and students’ level of comfort in OLEs may determine the amount of communication and connectivity, or social presence that occurs.

In an attempt to provide reasoning for various levels of social interaction taking place in web-based settings, the social presence theory (SPT) was conceptualized (Short
et al., 1976). The researchers recorded audio-based conversations void of any graphical representation to classify social presence by the degree of communication that occurs between individuals. Short et al. (1976) found that mediums involving F2F interaction reveal stronger social presence, with text-based mediums revealing the least amount of social presence. The SPT helps researchers measure the extent of communication that can occur in online settings that lack F2F capabilities.

Social presence’s constructs have been debated, as some researchers believe that users’ perceptions of the medium determine the immediacy of communication and the amount of social interaction (Olaniran, 1993; Rice & Love, 1987; Short et al., 1976; Tu, 2002; Tu & McIsaac, 2002) and others believe that the quality of the communication medium determines the amount of perceived social presence (Hu, 2001; Walther, 1992). Social presence has an unclear and comprehensive domain resulting in an inadequate definition; however, this does not mean that practitioners in the field of education should ignore its ability in teaching and learning (Biocca, Harms, & Burgoon, 2003). While too vague or too narrow a definition of social presence is considered inefficient, how social interactions are mediated and the aspects of the medium that result in social responses can offer a more persuasive explanation of social presence (Biocca et al., 2003). Although social presence is necessary for meaningful learning in online settings, it may be insubstantial to depend solely on social aspects of presence; the support of cognitive and teaching presence may be critical in providing the highest quality of interaction (Garrison & Cleveland-Innes, 2005).
Cognitive presence

Cognitive presence is measured by progressive stages of inquiry that begins with basic comprehension of an issue, and results in exploring, integrating and applying the new information (Garrison & Arbaugh, 2007). In online learning, cognitive presence is constructed by reflection and collaboration; students need the opportunity to internally reflect on their learning experience and externally participate in collaborative activities to meaningfully grasp the learning material (Garrison, 2003). Cognitive achievement, often referred to as higher-level learning, may be accomplished through structured design and facilitated guidance (Garrison & Cleveland-Innes, 2005).

Research has continually emphasized the role comfort level plays in providing an effective online learning experience (Hooper & Rieber, 1995; Shea & Bidjerano, 2009; Song, Singleton, Hill, & Koh, 2004). Through this research, it is suggested that instructors provide guidance for their students to gain confidence and become comfortable learning in an OLE (Muirhead, 2002; Shea & Bidjerano, 2009). This is where the reflective construct of cognitive presence plays its role, as allowing students to reflect on why they are feeling uncomfortable or are lacking confidence to perform in the OLE is suggested (Shea & Bidjerano, 2009). Structured and feasible content and clear understanding of what is expected are also considered to be essential components of providing meaningful learning experiences (Garrison & Cleveland-Innes, 2005). The authors further explain the importance of progressive communication, beginning with fundamental understanding, moving through forward thinking, and resulting in application.
Cognitive and social presences both distinctively contribute to encouraging meaningful approaches to learning (Gunawardena, 1995; Garrison & Cleveland-Innes, 2005), yet they may demonstrate more effective roles if supported by comprehensive instruction. Although cognitive and social presences are components of meaningful knowledge construction, it is suggested that teaching presence may be needed to move from social inquiry to cognitive awareness (Garrison & Cleveland-Innes, 2005).

**Teaching presence**

Teaching presence is measured by the instructors’ success with organizing effective content, facilitating dialogue and providing direct instruction to students (Shea, Li, & Pickett, 2006). Some argue that teaching presence is a necessity for providing meaningful learning experiences in OLEs (Garrison & Cleveland-Innes, 2005). Effective teaching presence involves instructors who implement and facilitate well designed social and cognitive processes, which may be achieved by confirmation checks, generating discourse on relevant topics, providing a range of resources for knowledge construction, and acknowledging misinterpretations (Shea et al., 2006).

A study examining students’ perceptions in an online course revealed a positive relationship among students’ perceived teaching presence and perceived sense of community (Shea et al., 2006), implying that the stronger the online teaching presence the more likely students will develop a sense of community. Instructors and designers should be cautious they are not implementing or developing teacher-centered instruction, while seeking to enhance teaching presence (Garrison & Cleveland-Innes, 2005). The proper balance of teacher intervention and facilitation is critical (Garrison & Cleveland-Innes, 2005; Kirikiadis, 2008) as inadequate guidance will result in insufficient reasoning
and minimal cognitive engagement among students (Angeli, Valanides, & Bonk, 2003). Effective teaching presence supports students on a learning trajectory to understand new content and connect new-found information with existing knowledge (Anderson & Dron, 2010). Teaching presence is also credited for its ability to foster both social and cognitive processes of students, when effectively designed (Garrison, Cleveland-Innes, & Fung, 2010). A main objective of teaching presence is to guide students in achieving expected learning goals (Garrison, Cleveland-Innes, & Fung, 2010). Pedagogy plays a role in ensuring the success of presence in online learning (e.g. Anderson & Dron, 2010); it is thus essential to further understand pedagogy and its role in online learning.

**Pedagogy**

**Defined**

Pedagogy is the composition or framework of education (Compayre, 1886); it involves exercising instruction (Olson, 2003) and delivering content (Seixas, 1999). Pedagogy not only conceptualized the necessary subjects of study we focus on today, but it revealed the means for constructing knowledge of these subjects and when properly practiced, yields a benefit to learning (Compayre, 1886). Originally emphasized by liberal undertones, pedagogy was developed to facilitate social, constitutional, and systematic learning to provide students with the necessary skills to prosper in life (Sheldon, 1901). Pedagogy is comprehensive, as it plays a role in all variations of teaching and allows for more effective learning experiences to occur (Ascough, 2002), which is why designers and instructors of online courses may pay mind to its ability.
Technology and pedagogy

Practitioners of education have relied on traditional pedagogical implications while new forms of learning continue to emerge (e.g., online learning, blended learning). A well-versed approach to further developing the methodologies behind pedagogy may be necessary to reach the fullest potential of technology integration, specifically with OLEs (Couran & Goulding, 2012; Revere & Kovach, 2011) and blended learning environments (Mayes & De Freitas, 2013). Although online courses are technology-based, the focus should be on the comprehensive application of the medium in view of pedagogy rather than the technology itself (Dede, 1995). Technology should not be treated as a transposable object; it should be regarded as an element of instruction (Okojie, Olinzock, & Okojie-Boulder, 2006). Considering technology integration is recognized as a continual process, instructors should be careful not to implement technology for the purpose of one activity (Okojie et al., 2006). Instructors should also pay mind to the appeal and novelty that is associated with new technology; the purpose of technology integration should be to enhance learning experiences not to implement technology simply for the appeal (Couran & Goulding, 2012). In addition to taking a conscious approach to technology integration, some researchers believe that this process needs an established policy and curriculum to guide technology use in education (Wozney et al., 2006). With the right intentions (Couran & Goulding, 2012) and proper infrastructure (Wozney et al., 2006), technology can positively influence learning experiences (Krentler & Willis-Flurry, 2005; Shana, 2009).

Technology has been shown to enhance learning experiences in a variety of ways; a range of technologies from straightforward discussion forums (Krentler & Willis-
Flurry, 2005; Shana, 2009) to more complex Web 2.0 tools (Augar, Raitman, & Zhou, 2004; Bush & Hall, 2011) and social media platforms (Wolf, Wolf, Frawley, Torres, & Wolf, 2012) have been effectively used in education. Student-centered approaches have been a central focus for successfully integrating technology (Hannafin & Land, 1997; Jonassen & Land, 2000). Self-regulation and retention are reported to be enhanced with the support of online technologies (Fisher & Barid, 2005), which impacts learners’ metacognition (Garrison, 2003). Although the selection of the technology is critical in providing an effective online learning experience, equally as critical is identifying effective instructional techniques and developing appropriate skills among instructors to support the integration process.

**Integrating technology within curriculum**

Technology, when integrated properly, can be used to develop instructional practice that more effectively concentrates on the needs of today’s learners. There are, however, barriers that need to be considered to increase chances of effective integration (Hew & Brush, 2007). Instructors’ technology proficiency can contribute to the success of technology integration (Zhao, Pugh, Sheldon, & Byers, 2002). Instructors’ ability to understand technology-infused pedagogy (O’Bannon & Judge, 2004; Zhao et al., 2002) and their personal perceptions (Chen, 2008) can also affect the outcome of learning situations (Chen, 2008; O’Bannon & Judge, 2004; Zhao et al., 2002). In addition to instructors’ personal perceptions and technology capability, there are other contextual factors that influence instructors’ abilities to successfully integrate technology (Ertmer, 2005) and can affect instructors’ responses to change (Bitner & Bitner, 2002). For example, instructors may have concerns regarding the changes that implementing
technology can produce, such as the anxiety that comes with transforming the classroom or the fear that resides in utilizing an unusual tool for instruction (Bitner & Bitner, 2002). Internal factors such as instructors’ anxiety or fear of a new technology, instructors’ lack of motivation to use a new technology and the instructors’ inability to accept failure are circumstantial features that need to be addressed prior to the integration process (Bitner & Bitner, 2002). External factors such as the amount of basic training and professional development available and the amount of accessible onsite support also need to be addressed (Bitner & Bitner, 2002; O’Bannon & Judge, 2004).

In order for instructors to conceptualize how certain tools are utilized to facilitate learning, it is suggested that teaching models be provided for the instructors who are in the process of technology integration (Bitner & Bitner, 2002). A research study examined a model that was created to enhance accessibility, provide professional development, and provide ongoing support, all of which contributed to the success of the study (O’Bannon & Judge, 2004). The model, which intended to increase instructors’ success with technology integration, yielded positive results; the model successfully increased the instructors’ capabilities with technology integration (O’Bannon & Judge, 2004). The authors, however, emphasize the importance of continuing these actions to ensure the sustainability of the integration process (O’Bannon & Judge, 2004).

**Addressing barriers to technology integration**

Many strategies have been identified as elements to overcoming barriers ranging from external approaches such as developing systematic technology plans to internal approaches such as addressing instructor motivations for using technology. Developing a technology plan is emphasized in research to implement a shared vision among all
involved in the technology integration (Hache, 2000; Hew & Brush, 2007; Moore, 1994; Richart, 2002). Levy (2003) recommends the design and implementation of online programs be supported by a structured technology planning process, as this is believed to influence the effectiveness of the program. A study that investigated the efficiency of a technology plan on successfully integrating technology in the classroom revealed that a technology plan is, in fact, effective in establishing a framework and staff development (Espey, 2000). While the technology plan serves as a guide for communicating technology goals and processes among instructors and administrators (Hew & Brush, 2007), the instructors may be better equipped to meaningfully integrate technology with additional curriculum support (Espey, 2000). Hew and Brush (2007) further emphasize the need for providing instructors with a sufficient amount of resources and support for technology-based curriculum. Assessment measures are also addressed in technology integration (Hew & Brush, 2007) and finding ways to provide instant feedback and innovative assessment of student learning are recommended (Oncu & Cakir, 2011).

Instructors’ motivation to use a technology can also impact the effectiveness of technology integration. Earlier research revealed that instructors desire a certain level of perceived gain in learning and personal development as motivation for using technology (Sheingold & Hadley, 1990); instructors must perceive a reason to improve or modify their professional practice in order to increase their chances of using a technology (Cox, Preston, & Cox, 1999a). Other research revealed instructors’ motivation to use technology depends on the convenience of the technology medium (Beak, Jung, & Kim, 2008) and their perceived ability to use a technology medium (Cox, Preston, & Cox, 1999b).
Various types of motivation are present and can be used to explain the intentions behind an individual’s actions. Individual interactions with a technology can be explained by an individual’s motivation to use the technology (Agarwal & Karahanna, 2000). Identifying whether an individual is intrinsically motivated to complete a task for personal reasons (e.g., satisfaction, interest, enjoyment) or extrinsically motivated to complete a task because of an external motive (e.g., reward, compensation, increased performance) may support the technology integration process. For instance, an individual who perceives a technology to be personally enjoyable illustrates intrinsic motivation to interact with a technology and individuals who see a correlation between the use of a technology and an increase in performance reveal extrinsic motivation to use a particular technology (Agarwal & Karahanna, 2000).

Another aspect of motivation, incentive motivation, indicates that an individual completes a task derived from a particular goal or performance related variable (Schunk, Pintrich, & Meece, 2008). This is relevant to the integration process, as teachers would need incentive in order to justify taking their time to acquire new skills in technology integration (Brand, 1997). Some even believe that without an incentive, instructors will not see any reason for meaningfully using technology for teaching and learning (Ertmer, Conklin, & Lewandowski, Osika, Selo, & Wignall, 2003). Improving teaching with technology, thus, may be most effective if there were more incentive to do so (Warschauer & Matuchniak, 2010).

In addition to developing systematic frameworks for technology integration and providing incentives to enhance instructors’ motivation to use technology, addressing their perceptions of technology implementation is another strategy for overcoming
barriers (Hew & Brush, 2007). Without addressing the instructors’ perceptions, administrators and designers are susceptible to be faced with reluctant faculty that resists the transformation to online learning (Levy, 2003). Students also influence the degree of success in technology integration (D’Souza & Wood, 2004; Li, 2007; Groff & Mouza, 2008) as their individual experiences with and perceptions of technology have an impact on the effectiveness of integration (Groff & Mouza, 2008).

**Perceptions of technology in the classroom**

Perceptions of technology integration have long been studied in the field of education (Vannatta et al., 2001; D’Angelo & Woosley, 2007; Gorder, 2008; Wang, Hung, Hsieh, Tsai, & Lin, 2012a; Witt Boriak et al., 2012) and researchers have emphasized the important influence that instructors’ personal perceptions have on effective technology integration (Bitner & Bitner, 2002; Brunner, 1992; Ertmer & Ottenbreit-Leftwich, 2010; Hew & Brush, 2007; Vannatta et al., 2001; Wozney et al., 2006). Considering instructors’ perceptions can influence the success or lack thereof with technology integration (Ertmer, 2005; Ottenbreit-Leftwich, Glazewski, Newby, & Ertmer, 2010; Su, 2009; Wood, Mueller, Willoughby, Specht, & Deyoung, 2005), if instructors have negative perceived ability in technology implementation, they may be uncomfortable with the task of implementation or they may not even attempt integration at all (Wozney et al., 2006). These preconceptions are often linked to the amount of professional support that instructors are exposed or have access to for technology integration (Hutchison, 2012; Vannatta et al., 2001; Wang et al., 2012a). The personal pedagogical style of the instructor is also an influencing factor on perceptions of technology (D’Angelo & Woosley, 2007; Ertmer & Ottenbreit-Leftwich, 2010). A path
analysis conducted to determine factors that affect technology integration (Inan & Lowther, 2010) yielded findings consistent with other research that emphasizes the influence of instructor perceptions (Bitner & Bitner, 2002; Brunner, 1992; Ertmer & Ottenbreit-Leftwich, 2010; Hew & Brush, 2007; Vannatta et al., 2001; Wozney et al., 2006) and support (Beudin, 2002; Groff & Mouza, 2008; Jacobsen, 1998; Lipscomb, 2004; Schoepp, 2005) on technology integration. Instructors’ readiness, however, was identified as the most influential variable on technology integration when all other variables were controlled, with computer efficiency having the greatest effect on teacher readiness; this proficiency is associated with the instructors’ ability to appropriately select and properly convey the benefits of a technology (Inan & Lowther, 2010).

Selecting the most suitable technology is a precondition for integration (Bitner & Bitner, 2002), whereas the instructors’ perceptions of technology use ultimately determines whether the technology facilitates and enhances the curriculum (Brunner, 1992; Bitner & Bitner, 2002). It is thus recommended to gradually increase the instructors’ perceptions of technology use (Brunner, 1992; Bitner & Bitner, 2002; Hew & Brush, 2007; Levy, 2003).

Considering student perceptions can affect the success of technology implementation (D’Souza & Wood, 2004; Groff & Mouza, 2008), it is recommended that instructors address students’ personal learning needs and preferences (Groff & Mouza, 2008). Students’ comfort level with the technology can influence the technology integration process; this indicates a need to familiarize students with the anticipated technology to minimize anxiety and maximize motivation among students (Groff & Mouza, 2008) and suggests that preparing students to learn in an online environment may
impact the effectiveness of the technology (Levy, 2003). D’Souza and Wood (2004) conducted a study that examined students’ perceptions of using computer-based spreadsheets in a mathematics course. Findings revealed concerns among students regarding the specific software being implemented, which affected the students’ comfort level with the technology (D’Souza & Wood, 2004). The students were concerned with the fact that they were relying on a program instead of their personal ability to produce results, as well as the time spent learning the program and the reality that the computers did not always operate properly (D’Souza & Wood, 2004).

Although students have occasionally faced challenges while learning with technology (D’Souza & Wood, 2004; Groff & Mouza, 2008), research on students learning with technology generally revealed a positive relationship among technology and student engagement (Beeland, 2002; Li, 2007) and increased student achievement (Dori & Belcher, 2005; Kulik, 1994; Mann, Shakeshaft, Becker, & Kottkamp 1999; Sivin-Kachala, 1998). A study investigating technology in the classroom examined student perceptions of the effectiveness of certain technologies, like PowerPoint and video-based tools, on student learning (D’Angelo & Woosley, 2007). Findings revealed a variety of perceptions regarding technology use and that pedagogy style was related to the students’ perceptions of the amount of learning potential associated with a technology (D’Angelo & Woosley, 2007). Another study (Gorder, 2008) examining k-12 instructors’ perceptions of technology use in relation to their demographic and background characteristics revealed that instructors’ technology use varied depending on the grade level they taught. In particular, high school instructors were more likely to use technology than the other grades’ instructors (Gorder, 2008). Instructors also showed
higher usage of technology for professional purposes and content delivery when compared to actual integration into curriculum (Gorder, 2008). In an earlier study, pre-service teachers participated in a series of technology-based workshops and were examined while they integrated their newly learned skills into their classroom (Vannatta et al., 2001). In the first year of examination, results revealed a positive change in proficiency among the participants but a need for a more sound understanding of the actual technology integration was apparent (Vannatta et al., 2001). In the second year of examination, and prior to modifications made considering year one’s results, the researchers found the pre-service teachers to have widespread proficiency and increased ability to use instruction that supports technology integration (Vannatta et al., 2001). Generally, the participants’ perceptions of technology in education were positively influenced by effective professional support and the participants disclosed their need for this support (Vannatta et al., 2001). A more recent study revealed similar results (e.g. Wang et al., 2012a). Instructors are revealing an appreciation for technology in education (Wang et al., 2012a) but the desire for support in technology integration is also revealed in the literature (Guzey & Roehrig, 2012; Hutchison, 2012; Vannatta et al., 2001; Wang et al., 2012a).

Despite the findings illustrated above, such as increased proficiency and ability to use technology infused instruction (Vannatta et al., 2001) and a positive reception of technology use in education (Wang et al., 2012a), professional support has been a main concern in technology integration (Guzey & Roehrig, 2012; Hutchison, 2012; Vannatta et al., 2001; Wang et al., 2012a). In fact, some results have revealed instructors to perceive technology-based professional development programs as ineffective (Mouza, 2002; Witt
Boriack, Alford, Bairrington Brown, Braziel Rollins, & Waxman, 2012) and in some cases, insufficient (Russell & Bradley, 1997; Cuban, Kirkpatrick, & Peck, 2001; Butler & Selbom, 2002; Loveless, 2003). A study examining instructors’ pedagogical values and technology use in the classroom revealed an inconsistent relationship among the instructors’ perceptions and actual practices (Chen, 2008). The participants delivered monolithic instruction and used technology to support it, despite their conceptions that constructivist approaches to learning were effective (Chen, 2008). This may be due in part to the ambiguity that surrounds the translation of technology into practice (Ertmer, Gopalakrishnan, & Ross, 2000), although the idea and motivation might be present, the actual competence may be missing. Each instructor, just as students, has a unique skill set for adopting and implementing technology (Ertmer et al., 2000; Straub, 2009). In fact, a study attributed success of its technology-focused professional development program to their participants, who voluntarily elected to partake in the program because of personal interest or value (Brinkerhoff, 2006). Considering the emphasis on personal interest, practitioners of education may produce more effective technology integration by taking into account the unique skill sets that instructors possess, instead of introducing expected outcomes that may not be feasible for every instructor (Ertmer et al., 2000).

Providing a reason for using a given tool may be effective, as it is sometimes difficult to portray relevance to the intended users of the technology (D’Angelo & Woosley, 2007). Factors recognized as influencing the effectiveness of technology-based professional development programs include the amount of available resources (Brinkerhoff, 2006; Onchwari & Keengwe, 2010), the adequacy of support (Beudin, 2002; Groff & Mouza, 2008; Jacobsen, 1998; Lipscomb, 2004; Schoepp, 2005), the amount of teacher
preparation (Brinkerhoff, 2006; Onchwari & Keengwe, 2010), and instructors’
perceptions and knowledge of technology (Brinkerhoff, 2006; Ertmer, 2005; Onchwari &
Keengwe, 2010; Ottenbreit-Leftwich et al., 2010; Schoepp, 2005).

**Professional development in technology**

Although educational environments have increased accessibility to technology,
practitioners of education have been challenged to effectively integrate technology
(Brand, 1997; Ertmer, 2005; Guzey & Roehrig, 2012; Schrum, 1999). The challenges
participants in a technology-based professional development program face may be
explained in research suggesting that one effective technology experience is not
necessarily applicable to all scenarios (Ottenbreit-Leftwich et al., 2010). Another
explanation for positive or negative results associated with technology-based professional
development is that the success of integration may be influenced by the instructors’ needs
and perceptions, as each instructor retains a unique set (Ottenbreit-Leftwich et al., 2010).
In fact, instructors’ perceptions, both pedagogical and psychological, have been identified
as potential barriers to effective technology integration (e.g. Ertmer, 2005; Wood et al.,
2005; Su, 2009). Their perceptions may be supplemented via professional development
and support, and thus enhance the effectiveness of technology integration (Ertmer, 2005;
Schoepp, 2005; Lowther, Inan, Strahl, & Ross, 2008).

A positive relationship has been revealed among instructors regarding the amount
of technology-based professional development and the extent to which they use
computers in their classroom (e.g., Becker, 1994; Gilmore, 1995; Zambo, Buss, &
Wetzel, 2001; Wozney et al., 2006). Illustrating methods that have previously shown
success is one technique for effective professional development (Wozney et al., 2006;
Gerard, Varma, Corliss, & Linn, 2011; Kim, 2011). A meta-analysis of 40 years of research on the impact of technology on student learning revealed a positive relationship among effective professional development programs and student learning with technology (Gerard et al., 2011). Despite this discovery, most online instructors are yet to develop the appropriate skills for engaging their students and facilitating interaction (Revere & Kovach, 2011). If students are going to reach desirable outcomes with technology, instructors should be comfortable carving the path for their students to do so (Brand, 1997). The level of technology-based training that instructors receive is important in this regard as it can influence the success of students learning with technology (Elliot & Mikulas, 2012).

Transition from isolation to professional learning communities

The concern remains in how to develop effective professional development, considering the amount of barriers that must be overcome (Brinkerhoff, 2006). Barriers range from external factors such as time and institutional support (Dias, 1999; Brinkerhoff, 2006) to internal factors like perceived ability and attitudinal factors (Brinkerhoff, 2006; Ertmer, 2005; Schoepp, 2005). Research has revealed teacher perceptions (i.e., their perceived self-ability to implement a particular technology) as a leading factor in technology integration (Ertmer, 2005; Groff & Mouza, 2008; Schoepp, 2005). In addition, support, in all contexts (e.g., administrative, technological, andragogical), plays a role (Beudin, 2002; Groff & Mouza, 2008; Jacobsen, 1998; Lipscomb, 2004; Schoepp, 2005). Other findings revealed time as a dominant factor in technology integration (Bauer & Kenton, 2005; Beudin, 2002; Dias, 1999; Jacobsen, 1998). Research revealing teacher perceptions as a main barrier to technology integration
may be explained by the amount of technology that is readily available; while resources are more accessible, other issues, such as time, are mediated (Schoepp, 2005). Learning programs for effective technology integration have been known to positively influence instructors’ attitudes towards integrating pedagogical practice with technology (Lowther et al., 2008). It is even suggested that professional training is reflective of instructional practice (Bauer & Kenton, 2005).

Online instructors might be cognizant of and take into account the anticipated learning outcomes they wish to achieve in an online setting (Ravenna, Foster, & Bishop, 2012). Regardless of the desired learning outcome, research suggests that online instructors facilitate discourse and interaction in OLEs (DiPietro, Ferdig, Black, & Preston, 2008; Lee & Hirumi, 2004). Instructors may benefit from specifying whether the goal is intended to foster a basic social connection or to facilitate higher-level interaction (Ravenna et al., 2012). Understanding that technology implementation is a social process and addressing cognitive aspects of implementation may further position successful technology adoption (Straub, 2009).

Lieberman and Pointer Mace (2010) take this idea further to making the teaching practice itself public and developing communities of practice among educators to ease the process of technology integration. Communities of practice are a collective group of people who share a common ambition, are mutually engaged by their social interface, and learn via frequent interactions and shared resources (Wenger, 1998). Lieberman and Pointer Mace (2010) have spent over a decade researching professional development practices; they believe that the traditional practices of professional development (e.g. individualized learning and professional growth) are challenged and possibly trumped by
facilitated professional learning communities. They proposition education-based professional development to be better suited in an online setting to promote conversation, colleagueship, and professional learning. Instructors participating in online learning communities benefitted from their experience as both students and practitioners (Mackey & Evans, 2011). The design of these professional learning communities should embrace self-regulated learning and facilitate the participants in connecting their personal learning experience with their own area of expertise (Mackey & Evans, 2011). There are social aspects of learning that also play a role inside professional communities of practice (Lieberman & Pointer Mace, 2010). In combination with cognitive and behavioral learning foundations educational practitioners should develop a blended outlook together with social learning to develop more suitable guidelines for online learning (Johnson & Aragon, 2003) and professional learning communities (Lieberman & Pointer Mace, 2010).

**Learning Theories**

**Behavioral learning theory**, an objective approach to learning, was established in attempts to justify how certain stimuli produce unintentional responses among individuals (Ormrod, 2008). Ivan Pavlov (1900s) used a conditioned and unconditioned response and stimuli on students, which led to what is now referred to as classical conditioning (Ormrod, 2008). Early behavioral researchers, such as Pavlov (1900’s), neglected individual thought processes as predictors of stimulus related outcomes and later, it was revealed that cognitive factors might need to be considered when analyzing classical conditioning (Ormrod, 2008). B.F. Skinner (1938) conceptualized the role that consequences play in a student’s ability to reach a desired behavior. As Ormrod (2008)
explains, Skinner developed the idea of operant conditioning, which assumes learning is influenced by reinforcement, whether it is negative or positive encouragement. Behaviorists examine outside influences, cultivated by our environment, to explain and predict individuals’ behavioral reactions (Haleblian & Finkelstein, 1999). Techniques such as positive reinforcement (e.g., encouraging feedback) and repetition (e.g., repeating the behavior many times) are common in behavioral instruction (Johnson & Aragon, 2003; Ormrod, 2008). Behavioral learning theories have expanded to include cognitive aspects, which make it necessary but difficult to distinguish between behavioral and cognitive learning theory (Brown & Campione, 1994). Generally, it is believed that human behavior is influenced by continuous and common interactions that are guided by cognitive and behavioral foundations (Bandura, 1977; Ormrod, 2008).

**Cognitive learning theory** is based on the notion that each individual has a certain set of schema (e.g., identified behavioral patterns) through which they construct knowledge and develop the ability to understand complex information structures (Muuss, 1967; Ormrod, 2008). Lev Vygotsky (1920’s), who initiated a sociocultural perspective, determined that an individual’s response is not based upon some reflex to stimuli, but that individuals are capable of making mental representations depending on certain behaviors (Luria, 1976). Jean Piaget (1964), a pioneer in cognitivist practice, believed that individuals develop knowledge through a circular structure where new information processes are continually connected to other information processes. Piaget also proposed that cognitive development is the actual process that occurs as a result of a mix of learning experiences. Piaget argued against the behaviorists’ stimulus-response idea stating that the response, or as Piaget referred to it as the structure, is already present
before the stimulus is implemented. Although, the two theorists had different explanations, both Piaget and Vygotsky emphasized the effectiveness of learning by doing, personally relevant activities, and interaction and they both believe that understanding is achievable at different levels depending on the student’s stage of development (Ormrod, 2008). Current theory suggests certain techniques such as prior knowledge (e.g., connecting to past experiences and comprehension) and multiple senses (e.g., using audio, text, and video) are often used to enhance cognition (Johnson & Aragon, 2003).

Eventually, a more comprehensive view of learning was recognized. Vygotskian foundations revealed the importance of social interactions as a means for constructing knowledge and Piagetian approaches have been recognized in students’ motivation to develop cognitively via their physical and social environment (Ormrod, 2008). As information is reinforced and imitated by student observation (behaviorist theory) and the information is cognitively processing (cognitivist theory), it results in social learning (Johnson & Aragon, 2003).

**Social learning theory**, which is often referred to as social cognitive theory, is widely recognized among researchers in education (Bandura, 1962; Mezirow, 1981; Gunawardena, 1995; Ormrod, 2008; Swan, 2002) and recommended for online learning (Swan & Shea, 2005). Together, behaviorist and cognitivist foundations have led to the development of social learning (Bandura, 1977; Ormrod, 2008). Albert Bandura’s (1977) theory of social learning focuses on observed behaviors and modeling, or observational learning, through which knowledge is constructed. Techniques such as modeling, imitation and observation are the driving force behind this theory (Ormrod, 2008). Social
learning theory underscores social interaction in education, as students participate in comprehensive activities they are inclined to interact with the materials, their classmates, and instructors to successfully construct knowledge and enhance cognition (Kim & Baylor, 2006). Perceived high levels of self-efficacy (e.g., firmly believing in one’s capability of completing a task) and intrinsic learning (e.g., a personal drive for learning) are two factors that can influence social learning (Ormrod, 2008). This theory has long been utilized in education and is responsible for many of the developments in traditional F2F education (Ormrod, 2008). Social learning has become recognized as a critical part of human learning (Bandura, 1962; Gunawardena, 1995; Mezirow, 1981; Ormrod, 2008; Swan, 2002) as the field of education continues to develop theoretical perspectives. In fact, it is suggested that an integrated and methodical approach to online learning may be most effective in reaching an OLE’s fullest potential (Johnson & Aragon, 2003), which leads to understanding the instructor’s role and how effective online instruction is developed.

**Online instruction**

**Defined**

National surveys have illustrated the growth of online enrollment over the years (Allen & Seaman, 2011; Queen & Lewis, 2011). There were over 6 million students enrolled in at least one online higher education course in the fall of 2010, which is an improvement of more than 500,000 when compared to the preceding year (Allen & Seaman, 2011). In the K-12 environment, 1,816,400 students were enrolled in online courses in the 2009-2010 academic years, which is a rapid increase from the approximate 40,000 documented in the year 2000 (Queen & Lewis, 2011). Online instruction is
differentiated by its medium and the location of its students; online instruction utilizes the Web to deliver content, and its students are located at a distance (Khan, 1997). Online instructors are influential in providing a prolific online learning experience (McKenzie, Mims, Bennett, & Waugh, 2000); the effective instructional methods for creating this type of experience will be defined in subsequent sections. It should be established that the online medium cannot itself have an impact on student learning (Barbour, 2012; Palloff & Pratt, 1999), rather how the instruction is transformed and the opportunities provided via pedagogy and online resources can influence student achievement (McLoughlin & Lee, 2010).

Both instructors and students in OLEs play a pivotal role in maturing and supporting the learning community (Rovai, 2002). It has been suggested that when an OLE is designed effectively, there is a high possibility that a wide range of learning needs will be met (Ally, 2004). Researchers have found OLEs facilitate a social environment in which students develop relationships (Walther, 1996; Walther & Parks, 2002); more specifically, OLEs that successfully generate conversation can result in a more meaningful learning experience (Kiriakidis, 2008). Research has revealed lesser degrees of social relationships in some instances of online learning, which can explain lower retention rates (Picciano, 2002; Allen & Seaman, 2010) but further implies the need for fostering meaningful online interaction (Newman, Olle, & Bradley, 2012).

Online instruction versus face-to-face instruction

Research indicates online learning to be just as effective as F2F learning (Johnson & Aragon, 2003; Johnson et al., 2000; Neuhauser, 2002). When comparing OLEs with F2F environments, examining the environments’ teaching and learning capability may be
better suited than attempting to determine whether one medium is superior to the other medium (Johnson et al., 2000). An exploratory study that compared student satisfaction and learning outcomes among graduate students enrolled in a F2F version of an instructional design course with those in an online version of that same course revealed the online version to be just as valuable to the learning experience as was the F2F course (Johnson et al., 2000). One apparent issue was the amount of instructor support, as the F2F students were more satisfied with the level of instructor support than were the online participants (Johnson et al., 2000). A meta-analysis that examined 50 studies focusing on online learning in comparison to F2F learning revealed a general consensus that online students engaging were more likely to perform equally as well if not better than students in F2F settings (U.S. Department of Education, 2010). This analysis further emphasized previous research (Johnson et al., 2000), revealing the significance of instructor support (U.S. Department of Education, 2010). Although the meta-analysis revealed positive implications for online learning, it is important to emphasize the medium is not the determining factor in learning outcomes; practitioners should turn to curriculum and pedagogy for effective practice (Johnson et al., 2000; U.S. Department of Education, 2010).

Research has emphasized the significance of traditional instructional theories (e.g. behavioral, cognitive and social theories) while adopting an innovative perspective of instruction (Johnson & Aragon, 2003; Johnson et al., 2000; McLoughlin & Lee, 2010; U.S. Department of Education, 2010). In fact, a mix of behavioral, cognitive and social learning theories is suggested to provide the most effective delivery of online instruction (Johnson & Aragon, 2003). No matter the medium of learning, students have a unique
way of learning so using a variety of instructional techniques may enhance the chances of meeting a variety learning needs among online students (Dewar & Whittington, 2000).

One of the advantages of online learning is afforded to students who are more introverted (e.g. those who selectively manage their emotional exposure), giving them a chance to express themselves and engage in the learning environment rather than passively learning in a F2F setting (Dewar & Whittington, 2000). When designed effectively, online learning is conducive to introverted students because they are able to think and prepare their contributions to the course (Dewar & Whittington, 2000). For example, when students are physically separated and capable of presenting themselves in a personally preferred manor, they can potentially construct a more controlled representation of themselves and avoid the social preconceptions that are sometimes found in F2F environments (Simonson, Smaldino, Albright, & Zvacek, 2000). Meeting the needs of online students may be influenced by the amount of student-centered curriculum that is provided, as this has been linked to high-quality learning environments (Long, 2011). There are other common practices that can contribute to the success of OLEs such as facilitating interaction (Johnson & Aragon, 2003; Lee & Hirumi, 2004; Milheim, 1995; Woods & Baker, 2004), providing support (McLoughlin, 2002), and fostering communication (Maor, 2004).

**Developing online instruction**

Instruction based upon a mix of theoretical foundations and methods of learning is believed to meet a variety of students’ needs (Carman, 2005). Drawing from behavioral, constructivist and social learning foundations, instructional designers can develop more quality online instruction (Molenda, Reigeluth, & Nelson, 2013). Instructional design
involves the process of systematically developing instructional materials, lessons and procedures and theoretically implementing these into practice (Molenda et al., 2013).

Considering the resources afforded by technology, instructors can facilitate meaningful learning environments with the support of 21st century tools (Groff & Mouza, 2008), which are comprehensive technologies that inform the user and support communication among users (Dede, 2010). The benefit of 21st century tools is reflected in research that suggests using constructivist approaches to guide effective online instruction (Bonk & Cunningham, 1998; Huang, 2002; Jonassen & Land, 2000; Maor & Zariski, 2003). Constructivist based instruction emphasizes interaction between the student and the learning environment and is generally learner-centered (Molenda et al., 2013). In applying learning theory to instructional design contextual analysis, takes contextual influences, such as the learner’s personal environment and attitude, into consideration during the design process and the first principles of instruction, comprises a comprehensive mix of recognized learning theories (Richey, Klein, & Tracey, 2011). Following the contextual analysis model (orientation, instruction, & transfer of knowledge), the designer increases students’ motivation to learn and prepares them for the actual learning task, provides environmental context to influence the implementation of instruction, and selects the environment for transfer of knowledge (Richey et al., 2011; p. 64). The implementation process can be impacted based on whether instructors perceive they are able to implement the technology based on their own contextual composition (Wozney et al., 2006). The First Principles of Instruction (Merrill, 2002) are a set of proposed guidelines that encompass the most recognized learning theories
(Richey et al., 2011); the five principles (Merrill, 2002, p. 44-45) are empirically based, emphasize the advancement of learning, and assume that:

1. Learning is promoted when learners are engaged in solving real-world problems.
2. Learning is promoted when existing knowledge is promoted.
3. Learning is promoted when existing knowledge is activated as a foundation for new knowledge.
4. Learning is promoted when new knowledge is demonstrated to the learner.
5. Learning is promoted when new knowledge is applied by the learner.
6. Learning is promoted when new knowledge is integrated into the learner’s world.

The design of effective instruction is also supported by behaviorist approaches to teaching and learning; Robert Gagne is considered to be a pioneer in the field of instructional design and is known for the development of the Nine Events of Instruction (Gagne, Briggs, & Wager, 1985). Gagne’s (1985) nine-step model suggests that effective instruction should gain the students’ attention, provide the students with expectations of the instruction, activate the students’ prior knowledge, present the content, provide student support, promote student application, provide feedback, assess the performance and facilitate transfer and retention; there is no particular sequence or frequency of events (Deubel, 2003). Gagne’s model was designed before the rapid growth of online learning yet instructional designers of online learning have relied on its foundations to develop effective online courses (e.g. Hannon, Umble, Alexander, Francisco, Steckler, Tudor, & Upshaw, 2002; Kidney & Puckett, 2003). The instructor has an influence on the quality of the online learning experience, which reveals the need for redefining pedagogy to better support online instruction (Maor & Zariski, 2003). Providing scaffolding is one
way to implement instructional support for online students (McLoughlin, 2002). Other student-centered tasks that may produce quality OLEs (Long, 2011) are allowing students to freely manage their connections with other members of the course and encouraging self-monitored learning in the online course (U.S. Department of Education, 2010). Research on principles of online learning (Johnson & Aragon, 2003; Lee & Hirumi, 2004) has revealed similar ideas to that of Gagne’s model (1985). For instance, online instruction may be enhanced by increased student motivation (Johnson & Aragon, 2003). One way to enhance motivation is by orienting the student with the content (e.g. gaining the student’s attention, providing expectations of the instruction, activating the students’ prior knowledge) (Gagne, 1985). Instructors who encourage and facilitate interaction among online students demonstrate successful online practice (Lee & Hirumi, 2004). This technique is underscored by Gagne’s (1985) emphasis of practice in the learning process (e.g. allowing the student to practice interacting with the material and the instructor providing efficient feedback regarding those interactions). Other suggestions for online instruction are to provide authentic context and facilitate self-evaluation among students (Johnson & Aragon, 2003) while guiding student learning (Lee & Hirumi, 2004). Gagne (1985) highlights the phases of testing, retention and transfer in instruction. Students might evaluate their learning in a way that aligns with the expected outcomes of the course, instructors may provide a real context for better retention, and guiding student learning may increase the transfer of knowledge into skills (Gagne, 1985; Johnson & Aragon, 2003; Lee & Hirumi, 2004). There are many contributing factors to creating an effective online learning experience (e.g. Johnson & Aragon, 2003; Lee &
Hirumi, 2004; Milheim, 1995; Woods & Baker, 2004) and a combination of these features may support quality online learning (Johnson & Aragon, 2003).

Other techniques of online instruction include facilitating interaction (Johnson & Aragon, 2003; Lee & Hirumi, 2004; Milheim, 1995; Woods & Baker, 2004) and fostering communication (Maor, 2004). Techniques such as encouraging discussion (Johnson & Aragon, 2003; Lee & Hirumi, 2004) and providing an atmosphere where students feel comfortable participating (Maor & Zariski, 2003) are recommended principles of instruction. Research has often emphasized the role of interaction in OLEs (e.g. Johnson & Aragon, 2003; Lee & Hirumi, 2004; Milheim, 1995; Woods & Baker, 2004). Interaction on its own, however, cannot fulfill the social needs of an online environment (Woods & Baker, 2004). Instructors are recommended to maintain the communication among members of the online environment (Lee & Hirumi, 2004). Fostering both content-based interactions and socially based interactions may foster relationships among members of the online environment (Maor & Zariski, 2003; McCarthy, 2010) and facilitate student engagement (McCarthy, 2010; Newman et al., 2012; Page et al., 2005). Social communication and belonging may influence the academic performance of the student, as indicated in research that revealed a correlation among students’ perceived social belonging and performance (e.g. Ellison, Steinfield, & Lampe, 2007). Practitioners may promote social communication and belonging through the use of OSNs (Liccardi et al., 2007; Reich, Levinson, & Johnston, 2011).
Online social networks (OSNs)

Defined

OSNs are web-based tools that have various identifiable features, although they commonly provide individuals an opportunity to identify and connect with other users of the system as well as develop and manage a shared profile (Boyd & Ellison, 2007). OSNs are distinguished from other online tools by an identifiable user profile and friend list (Boyd & Ellison, 2007). The user determines the amount of information being disclosed, as account and privacy settings are utilized (Boyd & Ellison, 2007). Features such as personal images and text-based communication are available in most social networks and some are capable of storing and sharing videos (Boyd & Ellison, 2007).

Dating back to 1997, the first launch of an OSN is documented; sixdegrees.com supported basic functionality for creating a profile and a friend list (Boyd & Ellison, 2007). From this innovation until 2001 there were a handful of online tools supporting a community of profiles and visible friend lists (Boyd & Ellison, 2007). In 2002, Friendster was launched; its intention was to pair and match friends of friends up with one another (Boyd & Ellison, 2007). This network was limited in functionality and was subject to fake user profiles and identities, causing it to gradually decline in the U.S. (Boyd & Ellison, 2007). In 2003 OSNs began to become mainstream technology with an abundance of new sites being developed (Boyd & Ellison, 2007). MySpace took over the OSN scene in 2004 and by 2006 had the highest number of site visitors, topping search engines such as Google (Prescott, 2007). With the success of MySpace and the launch of Facebook in 2004, OSNs became a global phenomenon. Society spends over 700 billion minutes per month on Facebook (Hurn et al., 2011), which is only one of the many OSNs
being used today. Edmodo, launched in 2008, led the way for educationally based OSNs. Edmodo allows instructors, their students, and their students’ parents to build a community. Some of the functions include a calendar of events, posting assignments, taking online quizzes, and interactive news feed. Edmodo is also capable of linking to and integrating a handful of Web 2.0 tools. With the additional features of OSNs, practitioners in education are beginning to utilize OSNs for online learning (e.g. Hurt, Moss, Bradley, Larson, Lovelace, Prevost, Riley, Domizi, & Camus, 2012; Veletsianos & Navarrete, 2012).

While known for fostering social connections among students and instructors (Dabbagh & Kitsantas, 2012), OSNs have a tendency to reveal compliance among those who are involved (Dron, 2007). For instance, if the majority of users are talking about a certain topic, that topic is more likely to influence the social interactions than would a comment made by only one person (Dron, 2007). Control is not always in the hands of the students, however; students using OSNs have the freedom to either control their own learning or to give control to the members of the OSN, which allows for different learning needs to be met (Dron, 2007). Understanding the students’ perceptions of other students’ perspectives is significant to their learning experience (Stacy & Rice, 2002).

**Perceptions of OSNs in education**

OSNs have effectively promoted meaningful learning (Barczyk et al., 2012; Dabbagh & Kitsantas, 2012; Junco et al., 2010; Ma & Yuen, 2012; Munoz & Towner, 2009); yet, there are mixed perceptions of OSNs as tools for facilitating effective learning experiences. A National Survey of Teachers about the Role of Entertainment Media in Students’ Academic and Social Development (2012) confirmed that in the United States,
on average, children (ages 8-18) use some type of media more than 7 ½ hours per day (p. 5). The survey revealed 67% of respondents consider entertainment media to negatively influence their students social development and 55% of these respondents believe OSNs to play a pivotal role in this regard (Rideout, 2012). OSNs have also been associated with controversial issues; students have been punished for unacceptable public behaviors within OSNs (Cain, 2008). For example, disciplinary action has been taken against students for posting inappropriate photographs, posts related to bullying or substance abuse, and illegal or unprofessional conduct within OSNs (Cain, 2008). Other concerns have been found among students who perceived the use of Facebook in the classroom to be a potential distraction from learning (Odom, Jarvis, Sandlin, & Peek, 2013; Ophus & Abbitt, 2009). Students also revealed a desire to keep their personal lives separate from their academic lives (Ophus & Abbitt, 2009). What might account for the skepticism is the fact that those who have high perceived technology ability are more inclined to see the benefit in media where as those who have low perceived ability are more inclined to focus on the negative aspects of media on students’ social development (Rideout, 2012).

Despite the negative associations, research has underscored the ability of OSNs to create engaging learning experiences (e.g. Barczyk et al., 2012; Hurt et al., 2012; Junco et al., 2010; Ma & Yuen, 2010). While examining students’ perceptions of web-based discussions, it was found that students preferred discussing academic content in Facebook over a university’s learning management system (LMS) (Hurt et. al., 2012). Following the academic discussion on Facebook, students’ perceived engagement increased; they perceived higher learning potential and opportunity for building relationships with other members of the course within the OSN in comparison to the CMS (Hurt et. al., 2012).
Students provided a similar response in a study that implemented an unconventional OSN platform (Elgg platform), which can be designed privately for a specific course and closed to those who are not members of the course (Veletsianos & Navarrette, 2012). Students expressed a preference for the OSN over more commonly used CMSs (Veletsianos & Navarrette, 2012). Students also prefer the ease of communication that OSNs permit when compared to other electronic communication such as email (Odom et al., 2013; Ophus & Abbitt, 2009). OSNs have been perceived as effective learning tools (Dalsgaard, 2006; Hurt et. al., 2012; Livingstone & Brake, 2010; Odom et. al., 2013; Ophus & Abbitt, 2009; Veletsianos & Navarrette, 2012; Waddington, 2011) that may support student relationships (Ellison, Steinfield, & Lampe, 2007). Considering the collaborative functionality of OSNs (Badge, Saunders, & Cann, 2012; Junco, 2012), learners may benefit from the engaging affordances of OSNs.

**Online learning and OSNs**

As online learning deals with a distance barrier that is not present in traditional classrooms, overcoming this hindrance becomes essential in online students’ learning. This has resulted in instructors directing their focus to OSNs with hopes of guiding student communication and facilitating self-regulated learning (Fisher & Baird, 2005; McLoughlin & Lee, 2010). Technology has provided individuals with the power to construct almost immeasurable OSNs, and these networks have been found to provide innate learning experiences and influence students’ level of social engagement (Barczyk et al., 2012; Ma & Yuen, 2010). Twitter, a micro-blogging social tool, and Facebook, the world’s leading online social networking service, each have been successfully implemented for educational purposes. OSNs offer an array of capabilities that supports
a diverse set of learners; social interface and collective communities are two features that support the process of differentiated instruction (Hall, 2002). A study (Bicen & Uzunboylu, 2013) that examined instructors’ opinions of Facebook before and after a series of Facebook classes revealed a consensus among the instructors that Facebook could positively influence student performance. Facebook has not only been utilized as a supplementary learning tool but as an actual LMS (e.g. Wang, Woo, Quek, Yang, & Liu, 2012b). Students revealed satisfaction when the Facebook group acted as the LMS for the course (Wang et al., 2012b). Facebook allows for the instructors to implement basic functionality of a LMS, but threaded discussion is not a feature of Facebook and the instructor is not able to mediate students’ privacy (Wang et al., 2012b). A study (Junco et al., 2010) was conducted to analyze the role of social media in student learning; the participants were from a first-year seminar course. The study examined the degree of influence Twitter has on student performance and engagement (Junco et al., 2010). Results indicated that implementing Twitter as an educational tool can result in rewarding learning outcomes while enhancing both student and instructor engagement (Junco et al., 2010). Generally, OSNs have been shown to support social connectivity among students and encourage informal student engagement (Dabbagh & Kitsantas, 2012). OSNs can also diminish apprehension associated with social isolation, as they have been found to promote interaction and socialization among students (Leskovec et al., 2010; Livingstone & Brake, 2010; Roblyer et al., 2010). As OSNs have been associated with socially engaging learning experiences (Barczyk et al., 2012), researchers have directed their focus to understand OSNs influence in the classroom (Dalsgaard, 2006; Livingstone & Brake, 2010; Waddington, 2011).
Advocates of social media in the classroom have revealed the social tools’ capabilities as they can be utilized in a variety of ways; relevant to enhancing online learning, OSNs facilitate constructive modeling, innovative learning, active learning, and knowledge management (Dalsgaard, 2006; Livingstone & Brake, 2010; Waddington, 2011). There are also barriers to OSNs in teaching and learning. OSNs are sometimes viewed as an accessible medium for exploiting children and young adults (e.g. pedophilia, bullying, & racism) (Notley, 2008). Another issue resides in the obstacles surrounding implementation is that when learning a new technology, there is sometimes fear and anxiety present among instructors (Dohn, 2008). This fear can be attributed to a lack of technology-based training and/or issues concerning privacy (Maranto & Barton, 2010). Considering the comprehensive nature of OSNs, instructors that resist this technology are putting students at a disadvantage by withholding potentially effective student-centered learning tools (Fiedler & Valjataga 2008; Friedman & Hershey, 2011). Instead of banning OSNs, some researchers believe that implementation can promote safe and responsible learning of these networks (Maranto & Barton, 2010; Notley, 2008; Roblyer et al., 2010; Sharples et al., 2009; Waddington, 2011). OSNs can positively influence the teaching and learning experience by promoting interaction and stimulating communication (Fiedler & Valjataga, 2008; Leskovec et al., 2010; Roblyer et al., 2010); constructing a more sound policy may lessen the skepticism surrounding OSNs (Livingstone & Brake, 2010).

Addressing these uncertainties is important because of the interactive and collaborative opportunities OSNs can afford the teaching and learning experience (Badge et al., 2012; Junco, 2012). Students are viewing online tools as a space where they can
access a collection of knowledge and obtain support in their learning, whether it is for questioning homework, researching additionally to class time, or receiving peer feedback (Greenhow, Robelia, & Hughes, 2009). Students’ expectations have changed with the up rise of technology; they now assume the responsibility of evaluating their own work as well as their peers and count on their peers to provide feedback as well (Greenhow et al., 2009). Prior to this pedagogical shift, students were relying on the instructor, who played an authoritative role, to approve of and examine their learning progress (Greenhow et al., 2009). Although the role of the student is central to successful online learning, the intention of learning is to construct knowledge. The idea of knowledge construction has reinvented itself; in an online setting the individual learning process is replaced with a social learning process (Kanuka & Anderson, 2007). Considering students are actively involved in their learning experiences (Greenhow et al., 2009) they have the ability to dynamically participate, assess and evaluate the learning material and construct knowledge based upon their interactions with others (Kanuka & Anderson, 2007). Social interaction does contribute to a meaningful online learning experience; interaction that is purely social will not suffice and thus, interaction that is structured and guided by an instructor may result in a more profound teaching and learning experience (Garrison & Cleveland-Innes, 2005). In this regard, students and instructors can benefit from social activities within the OLE (Dunlap & Lowenthal, 2009).

Implementing and utilizing OSNs in online learning settings can fill the void of the real-time interactions that are sometimes missed in OLEs (Dunlap & Lowenthal, 2009). OLEs tend to be housed in a LMS, yet there are alternative platforms like OSNs that can
offer a different approach to learning and interacting. OSNs often times provide a news
feed of newly posted discussion messages in a listed format (see Figure 1).

![Figure 1. Listed news feed in Edmodo](image)

Note. To protect the privacy of the participants, sensitive information is redacted.

The news feed can be focused by the instructor via a prompted discussion topic (see
Figure 2) or users can post inquiry based questions to gather answers to the proposed
question (see Figure 3).
Figure 2. Prompted discussion in Edmodo

Note. To protect the privacy of the participants, sensitive information is redacted.
Figure 3. Inquiry based post in Edmodo

Note. To protect the privacy of the participants, sensitive information is redacted.

Twitter, Facebook and Edmodo each have a variation of a news feed. OSNs that have real-time news feeds also promote informal communication (see Figures 4 and 5) (Burke, Kraut, & Marlow, 2011; Dunlap & Lowenthal, 2009; Zhao & Rosson, 2009) and they provide the existing posts, shared resources, and contributions that users make to the OSN page with minimal pedagogical support (Ebner, Lienhardt, Rohs, & Meyer, 2010).
Figure 4. Facebook real-time news feed revealing informal communication

Note. To protect the privacy of the participants, sensitive information is redacted.
Supplementing formal discussion with informal communication can increase student engagement and foster students’ relationship with their instructor so they feel more comfortable approaching their instructor with questions and concerns (Dunlap & Lowenthal, 2009). Facilitating informal communication may also reveal a common ground and personally relevant information among those involved in the conversation (Zhao & Rosson, 2009). When discussion is facilitated in a real-time news feed, more responsibility is put on the student because the discussion is not housed in a variety of threads (see Figures 6, 7, & 8), it is organized in a listed structure (see Figure 9) (Tu et al., 2012); the student must thus become self-regulated to maintain presence and coherence of the discussion (Tu et al., 2012). For instance, once a user is in the discussion board pictured below, it takes at least three clicks to get to the actual
conversation. This will only get the user into one of the conversations, he/she will then have to click back and forth to enter and leave certain topics of discussion.

Figure 6. Discussion thread in Blackboard 9.0: First step

Note. To protect the privacy of the participants, sensitive information is redacted.
Figure 7. Discussion thread in Blackboard 9.0: Second step

Note. To protect the privacy of the participants, sensitive information is redacted.
Figure 8. Discussion thread in Blackboard 9.0: Third step

Note. To protect the privacy of the participants, sensitive information is redacted.
Figure 9. Listed structure of a news feed in Edmodo

Note. To protect the privacy of the participants, sensitive information is redacted.

OSNs like Twitter and Edmodo have the support of hashtags, which is the use of a hash symbol (#) to group similar messages and thought processes and Facebook and Edmodo possess a grouping feature, which allows the instructor to create a specific page for a specific group of students; each of these features afford students the opportunity to interact in organized discussion (Tu et al., 2012). Facebook and Edmodo provide the instructor control of information delivery, which means the instructor, can make a privately monitored group page, in which only group members will be able to view the content being posted. This way the users are protected from the public viewing their posted information. Twitter offers less control, because there is no option for private grouping so posts are public on the community news feed. Edmodo comprises additional features that allow the instructor to regulate privacy and information disclosure of
students; this is useful to keep the public from viewing unwanted information. Twitter has the capability of organizing discussions and interactions with the hashtag feature, while OSNs like Facebook and Edmodo are capable of facilitating multiple modes of interaction; for example, these OSNs provide a platform to interact and communicate via text, video, and audio mediums (Tu et al., 2012). When encouraging interaction, the instructor should clarify the desired interaction and then select the OSN that is best suited to promote the selected interaction.

Recent LMSs have many of the capabilities listed above as well; however, OSNs can afford additional advantages for connecting with others. For example, OSNs provide the opportunity for interacting with other users outside of a specific course. An instructor from a district in Pennsylvania may be able to connect with and implement a lesson with an instructor located in China, without the added cost; LMSs require an additional cost for using LMSs whereas OSNs are free of charge. This may promote cultural awareness and provide a different perspective on an otherwise traditional form of instruction. Educators participating in OSNs can also have the opportunity to build professional learning communities, obtain professional resources, and receive peer-related support in developing lessons and strengthening practice.

Students’ social presence plays a role in the success of the OSN; their perceived social presence can influence their perceived learning (Richardson & Swan, 2003). Students’ perceived social presence also influences their presence in online discussion; those with the highest perceived social presence were more likely to be present in online discussions (Swan & Shih, 2005). A research study designed to facilitate social presence via structuring small groups beginning with the teacher modeling appropriate social
presence, led to higher social presence among students (Stacey, 2002). Instructors’ involvement with an online course can also influence student satisfaction with the course (Richardson & Swan, 2003). Instructor involvement (teaching presence) that becomes teacher centered will not benefit the students however; instructor involvement that promotes student participation will better support students’ construction of meaning (cognitive presence) (Garrison & Cleveland-Innes, 2005). It is important to find stability in the appropriate amount of teaching presence as instructor to student communication supports effective learning (Kirikiadis, 2008).

**Instruction within OSNs**

Instructors are encouraged to foster student interaction by way of online mediums that allow for more than simple text-based interaction so the students can connect in a more affluent context (Stodel et al., 2006). When initially implementing an online medium, such as an OSN, students may benefit from an established set of social tasks (Hewson & Hughes, 2005); whether or not students perform this set of genuine social actions can influence their engagement with the group (Hewson & Hughes, 2005). Instructors need to support students in constructing their identity within the group, establishing relationships with other group members, trusting other group members, and playing a role in the communication (Hewson & Hughes, 2005). Instructors also need to promote information disclosure among students, as this can help build a community of learners (Rovai, 2002). In order to achieve success while using social media, it is also suggested students to manage their individual knowledge (Dabbagh & Kitsantas, 2012) and constructively perceive the OSN being used (Odom et al., 2013). While investigating and comparing the perceptions of instructors who teach both F2F and online courses,
researchers found that the online learning environment supports self-direction among learners, and that the instructor plays a more facilitative role when compared to the traditional F2F classroom (Stacey & Weisenberg, 2007). When facilitating discussion in an online setting, it is advised that instructors are wary of their participation; commenting too frequently or too quickly may put a stop to the conversation as students may foresee the feedback as a form of approval from the instructor (Duebel, 2003). Some even suggest allowing a fluent student conversation to carry on without interjection from the instructor (Muilenburg and Berge, 2001). This aligns with the ideals of differentiated instruction, that suggests a balance between instructor initiated and student initiated tasks (Hall, 2002).

Not only can instructors benefit from integrating OSNs into the classroom, but they can benefit from OSNs via professional growth (Office of Educational Technology, 2010). The National Education Technology Plan (2010) underscores the relevance and decisive advantages of OSNs in professional learning and progress of instructors. The plan highlights the opportunity OSNs afford educators for professional growth in practice and to expand and communicate resources with experts and peers in the field of education (The U.S. Department of Education, 2010). This plan further emphasizes the ground-breaking work of Lave & Wenger (1991) where the researchers stress the effectiveness of communities of practice for learning and believe learning is more meaningful when students are participating in a concentrated community instead of individual-based learning. Effective professional learning platforms build on community knowledge yet allow students to adapt the provided resources and content to their professional goals and learning preferences (Klamma et al., 2007). Instructors are recommended to carefully
select the amount of information they disclose within these networked communities however, as students have expressed uncertainty around the subject of teacher self-disclosure in OSNs (Mazer, Murphy, & Simonds, 2007). If all of the pieces are effectively put together, OSNs afford instructors the opportunity to participate in a lifelong learning community (Klamma et al., 2007) and gain support in their teaching practice (Borko, Whitcomb, & Liston, 2009).

**Summary**

This chapter reviewed relevant literature focusing on the evolution of learning from a traditional to online and blended fashion and the importance of understanding the perspective of the instructor throughout this progression. Particularly clear is the desire of today’s learners to communicate and obtain information in increasingly digital ways. Uncovering ways to support this need is critical to the success of the modern day teaching and learning process. Some practitioners have turned to OSNs to provide a space for open communication and instant access to information; in some instances this has been well executed and in others there is resistance to this type of tool as an instructional platform. Further understanding of instructors’ perceptions is necessary to ensure effective tools are being used to their full potential, as their perceptions can influence the success of a particular technology. In addition to students benefitting from innovative instruction, professional development that is facilitated in the form of a professional learning community has also resulted in more effective teacher learning when compared to more individualized approaches. Identifying platforms that can support this type of learning, therefore, requires further examination. On account of the literature review, it is apparent that both the teaching and learning process are growingly
becoming modernized, making it ever so important to understand the perspectives of those involved. Chapter 3 will explain the steps taken to address the revelations found from the review of the literature.
Chapter III

Methodology

Introduction

Considering the mixed perspectives on OSNs as instructional platforms documented in relevant literature, studies examining the characteristics of the participant perceptions of OSNs as instructional platforms will help educators and administrators to better employ OSNs for teaching and learning. In an effort to understand participants’ perceptions of OSNs as instructional platforms, this study created a professional development workshop on an OSN, which would also promote a professional learning community. This workshop offered information regarding how to implement and assess OSNs for teaching and learning, surveys and interviews, as well as online interaction; discussion and reflection within the OSN are used to reveal instructor perceptions of the OSN as an instructional platform, which promotes professional learning community. The impact of using an OSN as an instructional platform was examined to potentially contribute to research focusing on the perceptions of OSNs as instructional platforms, which eventually will be able to meet the needs of today’s students.

Research Questions

This study intended to investigate the nature of participants’ perceptions of OSNs as instructional platforms. With the intention of understanding participants’ perceptions of OSNs for teaching and learning, this study used Edmodo as an example OSN to deliver an online professional development workshop. In order to reveal instructor’s perceptions of an OSN as an instructional platform, which promotes professional learning community, answers to the following research questions were sought after:
1. How do k-12 instructors perceive the OSN as an instructional platform?

2. To what extent does the OSN support a professional learning community?

3. How do instructors’ perceptions change over the course of the online workshop?

**Expected Results**

It is anticipated that participants’ perceptions of OSNs as instructional platforms in terms of usefulness, ease of use, added value, and usage will be more positive following the intervention of the workshop using Edmodo. Instructors realize the benefits of technology yet the needs for support in the integration process are often reported (See Guzey & Roehrig, 2012; Hutchison, 2012; Vannatta et al., 2001; Wang et al., 2012a). Considering instructors’ perceptions (e.g., their perceived self-ability to implement a particular technology) are a potential barrier to technology integration (e.g. Ertmer, 2005; Su, 2009; Wood et al., 2005), professional development may increase their self-belief, thus enhancing the effectiveness of technology integration (Ertmer, 2005; Schoepp, 2005; Lowther et al., 2008). In fact, a 40-year meta-analysis revealed effective professional development programs positively influence student learning with technology (Gerard et al., 2011).

It is also anticipated that the OSN will support a professional learning community. Traditional professional development practices (e.g. individualized professional growth) have been superseded by the idea of facilitated professional learning communities that promote professional learning and communication among colleagues (e.g. Lieberman & Pointer Mace, 2010). If designed to foster personal learning experiences that manufacture connections to users’ areas of expertise, those participating in professional
learning communities benefit as both students and practitioners (Mackey & Evans, 2011). The intervention of the workshop and support of the professional learning community are intended to positively influence participants’ perceptions of OSNs as instructional platforms.

Instructors’ capability level and use of a particular technology can influence instructors’ reaction to change (Bitner & Bitner, 2002) and impact their ability to effectively integrate that particular technology (Ertmer, 2005). Instructors who do not regularly use OSNs may have difficulty translating the technology into practice (Ertmer et al., 2000) because the actual competence may be missing. Additionally, instructors’ knowledge of a technology can influence the effectiveness of technology-based professional development programs (Brinkerhoff, 2006; Ertmer, 2005; Onchwari & Keengwe, 2010; Ottenbreit-Leftwich et al., 2010; Schoepp, 2005).

**Research Design**

When the goal of investigation is to understand and generate meaning, qualitative research is suggested (Merriam, 2009). Specifically, when looking to thoroughly examine a bounded system, researchers turn to case study methodology (Merriam, 2009). A qualitative case study method was chosen for in-depth understanding of participants’ perceptions of the OSN as an instructional platform promoting a professional learning community. The case was bound by time and place as a particular group of k-12 instructors, from a specific type of district (high performing and high technology), participated in the workshop over the course of 7 weeks. Having the study focused by these parameters made it possible to concentrate on the perceptions of the participants rather than their ability to use a computer or perform in an online setting.
A case study design affords several benefits when studying a small sample size; specifically the inductive and adaptive nature of the process allows the researcher to gain a deeper understanding of the occurrence being analyzed (Merriam, 2009). Specific to the current research, an observational case study approach was adopted. In an observational case study, the main source of data collection is observation for the researcher to be able to document individual’s actions in a particular environment (Bogdan & Biklen, 2007). Throughout the workshop, there were self-reflections, discussions and interactions within the Edmodo workshop site, and conversations about the design and development of the participants’ learning modules; the participants were responsible for self-regulating their own learning as the workshop was designed to be self-paced and learner-centered. This feedback was the main source of data used to analyze their perceptions.

Participants’ responses to the pre- and post-intervention surveys (See sub-sections A1, A2, A3, & A4 of Appendix A for the survey questions) and one participant’s voluntary audio-recorded interview (See sub-section A5 of Appendix A for the semi-structured questions) was also used to further reveal any relationship between the behaviors of the participants and their background experience and perceptions. Prior to the workshop the participants’ perceptions of OSNs as instructional platforms were measured using the pre-intervention, online survey; the perceptions were measured in terms of ease of use, usefulness, added value of the OSN, and perceived self-efficacy of self-paced learning within the OSN. These perceptions were then measured once again upon completion of the workshop with the administration of the post-survey so that participants’ perception changes could be analyzed.
Description of the Online Self-Paced Workshop

The study used Edmodo (https://www.edmodo.com/) as an example OSN because of its ease of use and the benefits it can afford to its users, such as increased interaction among classroom members, improved engagement, and enhanced collaboration. It also provides its users with one hub for integrating multiple technologies and tools (e.g., it allows for the integration of Google docs, YouTube, wiki spaces, etc.). Users of OSNs have expressed a desire to keep their social lives private and separate from their learning environments (Ophus & Abbitt, 2009). Some OSNs such as Facebook may, thus, be better suited for social interaction instead of content-based learning and interaction. Edmodo, on the other hand, is specifically designed for instructors and their students; it also provides the instructor more authority concerning privacy and disclosure settings.

The workshop was housed in Edmodo to encourage constructivist learning - supporting student interaction and fostering active, authentic learning experiences (Richey et al., 2011).

A series of workshop sessions have been developed to provide participants with a framework for implementing Edmodo with pedagogy into practice. The workshop, thus, professionally supports participants in learning how, when and where to use the OSN, and to promote positive perceptions concerning the role of OSNs in the classroom. The workshop sessions were designed based on pedagogical implications of instructional design theory. In applying learning theory to instructional design, the workshop sessions were developed based on contextual analysis and the first principles of instruction (e.g., learning is promoted when 1) learners are engaged in solving real-world problems; 2) existing knowledge is promoted when existing knowledge is activated as a foundation for...
new knowledge; 3) new knowledge is demonstrated to the learner; 4) new knowledge is applied by the learner; and 5) new knowledge is integrated into the learner’s world) (Richey et al., 2011). The participants were directed through a series of tasks that support them in developing their ability to infuse their prior knowledge of teaching and learning into developing an online learning module for implementation.

Upon completion of the workshop, the participants were asked to implement a lesson in Edmodo. There will be no direct supervision from the researcher, thus the implementation process will be entirely self-regulated by the participants. The participants were also encouraged to connect with other members in the group and community members outside of the Edmodo workshop (e.g., other educators) to support them in building a professional teaching and learning network.

Prior to session one, participants were asked to complete a pre-intervention survey. Upon completion, the participants were given a link to a Google site (see Figure 10), which provided the participants with instructions on how to set up an Edmodo account and how to get started with the workshop; once the participants set up their accounts, they were granted access to begin session one. Participants were also be provided with a description of the purpose of the workshop (e.g., to understand how Edmodo functions as an instructional platform), the steps needed to achieve this task, and the processes for performing and operating the tasks. This was provided to participants in compliance with the problem-centered task principle (Merrill, 2002).
Session one was created to provide the participants with a fundamental understanding of Edmodo. The participants were asked to view a series of video-based tutorials designed to convey Edmodo’s educational purpose and to support instructors in gaining a general understanding of what Edmodo is and why they may want to incorporate it in the classroom. Text-based versions were also provided for those that prefer to learn by reading (See sub-sections B1 & B2 of Appendix B). This is intended to support participants in finding personal significance (Ormrod, 2008) and increase motivation (Gagne, 1985) in the beginning stage of the workshop. These tutorials provided an overview of the basic navigation features that were used throughout the workshop, and served as an expository organizer (or a description of the content that is intended for use) as suggested for facilitating meaningful learning (Ormrod, 2008).
These also helped participants familiarize with the material in preparation for the learning tasks (Richey et al., 2011). The participants were then asked to provide an initial reflection, by responding to a prompt provided in the Edmodo workshop, which highlighted their preliminary perceptions about the use and functions of Edmodo as an instructional platform and how they foresee it being used in their practice. This technique was selected to support participants in assessing their own thought process and influence their metacognitive knowledge (Schunk, Pintrich, & Meece, 2008). The questions (e.g., How do you foresee Edmodo being used in your practice? How can Edmodo function as an instructional platform?) were designed as higher-level questions, to support the participants in constructing deeper meaning and understanding of the content (Ormrod, 2008).

Session two focused on the importance of pedagogy in technology integration, as it can impact the success of implementation (D’Angelo & Woosley, 2007; Ertmer & Ottenbreit-Leftwich, 2010; O’Bannon & Judge, 2004; Zhao et al., 2002). A national study (Garet, Porter, Desimone, Birman, & Yoon, 2001) revealed that the effectiveness of professional development is influenced by the degree of associated learning activities, so it is recommended to provide tasks that meet participants’ individual goals and experiences (aligning with pedagogy). Participants were asked to review the following artifacts: ISTE Standards for Students, Bloom’s Taxonomy Reinvented, and Implementing Technology Standards (Appendix C, subsections C1, C2, and C3). These documents were intended to activate existing knowledge of standards and instructional techniques to understand new ways for implementing technology based on pedagogy; this was based upon the activation phase (Merrill, 2002) which links previous knowledge of information
with new knowledge of information. Participants were then asked to review two resources: *7 Ways to use Edmodo in the Classroom* and *15 More Ways to use Edmodo in the Classroom* (Appendix C, subsections C4 and C5). These particular artifacts were chosen to act as models by illustrating ways to supplement pedagogy with Edmodo; this technique was implemented to increase the participants’ intrinsic motivation (Schunk et al., 2008) and to demonstrate what was intended to be learned (Merrill, 2002). The purpose of providing a model is to increase the chances of the participants performing a particular behavior (Schunk et al., 2008); the behavior is to begin developing a pedagogically-based lesson to implement within Edmodo. The participants were also given direction to connect with other members of the learning community outside of the workshop and begin designing a learning module to be implemented within Edmodo. This task was intended to promote learning by having the participants apply their new knowledge (Merrill, 2002) of how to utilize Edmodo in the classroom to develop a learning module for their students. While encouraging the participants to connect with non-participants (e.g., other members of the community), it was intended that the participants would be influenced by similar environmental contexts (Richey et al., 2011) within the professional learning community. Participants were also encouraged to comment on and provide suggestions for other members’ posts. This was anticipated to facilitate active learning as they received feedback from their peers and analyzed the online teaching and learning process (Garet et al., 2001). With the support of these artifacts and following some investigation done by the participants, they were asked to develop an idea for a learning module, post it to the Edmodo homepage, and read and respond to other members of the workshop. They were specifically asked to align their
learning module with the provided standards, select a level of bloom’s taxonomy that they wanted to achieve, and to base their selections on pedagogical foundations; they were encouraged to develop a lesson specific to their area of expertise. This task was designed to activate the participants’ prior knowledge of teaching and learning, transition that into using a technology for teaching and learning, and provide authenticity and contextual relevance to the participants.

*Session three* was designed to support the participants in creating a group homepage for a learning module and to develop an assessment measure. The participants were asked to watch two short videos that model how other teachers are using Edmodo for teaching and learning; this also coincides with research emphasizing the importance of observing successful implementation in professional development (Ertmer, 2005). The participants were also provided a collection of rubrics for assessing student learning within Edmodo (Appendix D, subsections D1, D2, D3, and D4). The participants were asked to view and research the provided rubrics. Participants, then, were asked to create a group where they can potentially house their learning module and to post a note to the workshop homepage to explain how they structured their group, what they chose to name it and describe how they may assess their students’ learning in the learning module. Again, participants were encouraged to comment on and respond to other members’ posts.

*Session four* was designed to focus on additional assessment measures for learning within Edmodo. The participants were instructed to watch the *Edmodo Assessment tutorials*, which are a series of videos. The videos took the participants through the steps for creating a quiz within Edmodo. These tutorials provided the
participants with ways in which they can review their students’ work via a variety of assessment measures (e.g., multiple choice, short answer) using the quiz function. Instructors prefer practical professional development experiences that align with standards and assessment methods (Garet et al., 2001); programs that provide the opportunity for instructors to link content with pedagogy have been positively perceived as successful professional development (Garet et al., 2001). The participants were instructed to use the provided information to develop their own means to assess their students in their learning modules by creating a quiz. The participants were also asked to post a note to the workshop homepage stating the type of quiz they created, what the topic of the quiz is, and their thoughts regarding the quiz function as a means for assessment. The participants were also encouraged to reply to any members posts and provide suggestions for their peers.

Session five was designed solely for the participants to finish preparing their learning module. This included gathering resources, uploading those resources and assisting their students in setting up an Edmodo account. This session was also used to address any questions or concerns the participants had regarding their learning module. The participants were then given a two week period for implementation. Following the two-week implementation period the participants were asked to post a final reflection describing their experience with implementing their learning module in Edmodo and their view of Edmodo as an instructional platform. This was designed to support the participants in learning by integrating their new knowledge into practice (Merrill, 2002) and to effectively transfer the participants’ learning into their contextual environment.
(Richey et al., 2011). At the end of the two week period the post-intervention survey was administered.

**Participants**

The participants were K-12 instructors who worked for a district that hosted at least one online professional development program. This criterion was established to increase the chances of the participants’ being capable of learning online. The participants were from a range of grade levels and from a range of subject areas. The school district was a suburban middle-class school district located in a northeastern state of United States, consisting of upwards of 3,000 students. The district was one that is considered to be high-performing and one that has a high technology presence. These factors were chosen to eliminate any issues regarding teachers’ access to a computer, their ability to use a computer, and their ability to participate in an online environment.

**Data Collection Methods**

The main source of data collection was through observation of the participants’ online interactions, feedback and conversation; personal reflection data was also collected via an online interview. Additionally, two adapted survey instruments (Technology Acceptance Model (TAM) and Online Learning Value and Self-Efficacy Scale (OLVSES)) were used to measure the perceptions and self-efficacy of the instructors.

The TAM was intended to measure instructors’ perceived usefulness and perceived ease of use of online technology - OSNs (Table E1 of Appendix E). The TAM was selected because instructors’ perceived usefulness has been evidenced to have a relationship with ease of use and their intention to implement a particular technology.
The TAM has been widely used in longitudinal studies and has proven reliability, Cronbach’s $\alpha > .7$ (Hu, Clark, & Ma, 2003; Huang, Deggs, Jabor, & Machtmes, 2011; Moon & Kim, 2001; Venkatesh, 2000; Willis, 2008).

The OLVSES was intended to measure task value (1. Attainment value 2. Intrinsic interest value 3. Extrinsic utility value) and self-efficacy for learning with self-paced, online training of instructors (Table E2 of Appendix E). The OLVSES scale was chosen to divulge the learners’ self-efficacy with self-paced learning and whether they perceived value in learning about an OSN as an instructional platform. The OLVSES scale maintains good internal reliability, Cronbach’s $\alpha = .85$ & .87 for the two subscales (Artino & McCoach, 2008). The domains of the TAM and OLVSES are delineated in Tables E3 and E4 of Appendix E, respectively. Taken together, the instruments were expected to assess whether the instructors’ perceptions of OSNs as instructional platforms change following the intervention of the workshop and whether the instructors’ self-efficacy of learning within an OSN as an instructional platform was affected.

An additional set of questions developed by the researcher (Appendix F, sub-section F1) were used to collect data regarding the participants’ experiences with OSNs, personal background information, and participants’ expectations of the workshop and provide information on participants’ profiles. The TAM and OLVSES questions for implementation can be found in sub-sections F2 and F3 of Appendix F. Although these instruments are originally developed as quantitative scales, the individual questions are qualitative in nature and were accordingly interpreted on a case-by-case basis instead of making inferences about the group as a whole. This decision was made in light of this
study’s small sample size and the recent movement to ban inferential statistical analysis, specifically Null Hypothesis Significance Testing (See Trafimow & Marks, 2015).

Procedures

Prior to contacting potential participants, the superintendents, assistant superintendents, and/or the director of curriculums of target school districts that hosted at least one online professional development course were contacted to obtain permission to reach out to the teachers on staff for participation. This criterion was established in order to ensure the teachers being recruited had prior knowledge of using an online learning environment. This allowed an investigation of participants who can focus on the content of the workshop instead of how to complete the self-directed tasks. The recruitment of participants was made by way of email; the superintendent(s) (or other administrative personnel contacted) of the school were asked for the email addresses of the teachers. See sub-section G1Appendix G for the subject recruitment message.

Once the recruits made a written (via email) commitment to participate, an email was sent out asking their informed consent to proceed and explaining procedures for their consent to participate in a research study. This link to the informed consent form was provided prior to the start of the workshop. Participants were informed that the purpose of the study was to examine their perceptions of OSNs as instructional platforms. They were also informed that participation was strictly voluntary; participation would be kept confidential; and there would be no penalty if they choose not to participate in the research. By reading the informed consent form and completing the pre-intervention survey (which was located at the bottom of the informed consent form) the participants consented to the terms of the research study. All online workshop material were locked
and hidden from participants until their informed consents were obtained. Please see subsection G2 of Appendix G for a copy of the consent form.

Answers to the research questions were sought through the analysis of online feedback, including discussion responses, self-reflections, and interactions posted within the online workshop; voluntary audio-recorded interview responses and the survey (administered both pre- and post-intervention) were also examined. A five-part, online self-paced workshop was implemented within the OSN, Edmodo. The workshop demonstrated how to use Edmodo and how to connect core technology standards and pedagogy to teaching and learning with technology. Each of the participants set up their own Edmodo account, designed a brief lesson for implementation, aligned their lesson with pedagogy, created a group in which they could house their lesson, learned how to assess student learning, and participated in discussion and reflection throughout the workshop. Information was gathered from the participants’ feedback (e.g., discussion responses, self-reflection, and interactions with the material and their peers in the workshop), voluntary audio-recorded interviews, and pre- and post-intervention surveys.

The survey included components from the TAM model and the OLVSES scale to measure the participants’ perceived usefulness, ease of use and added value of the OSN as an instructional platform and their perceived self-efficacy of self-paced learning within the OSN. The survey also included a set of questions asking the participants’ background information and their experience with using OSNs outside of the workshop. A specific set of questions was designed to measure the extent to which participants use OSNs outside of the workshop. The pre-intervention survey was administered prior to the workshop.
The participants then completed the online workshop; the workshop consisted of five-sessions, and upon completion of the sessions, participants were provided a two-week window of opportunity for instructors to implement a learning module within Edmodo. Participants’ reflections were additionally documented within the workshop. The participants were asked to post two reflections within the online workshop, at the start of and upon completion of the workshop. After reviewing the session one content, the participants were given a prompt for self-reflection; the participants were asked to provide their initial thoughts regarding the use of Edmodo as an instructional platform. Upon completion of the workshop and following the implementation phase of the workshop, the participants were given a final prompt for self-reflection; this was designed to elicit participants’ perceptions of implementing and using the tool in their classroom. These reflections were intended to gather feedback from the participants regarding their experience with and their position on Edmodo as an instructional platform and a professional learning community; throughout the duration of the workshop discussion prompts were provided and participants’ responses were also collected. Once the five sessions were complete, and the learning module implementation phase was completed, instructors were asked to post their final reflection and complete the post-intervention survey. The participants were also asked to participate in a voluntary audio-recorded exit interview guided by a set of semi-structured questions.

Data Analysis

To construct meaning and understand participants’ experiences, a qualitative data analysis was conducted in conjunction with data collection (Merriam, 2009). Data analysis began following the start of the workshop; this was done to parallel data
collection with the analysis and to emerge and identify patterns throughout the progression of the study. From the participants completing the pre-intervention survey, to the conversations throughout the online workshop, and finally to the exit interview, data were being analyzed. This was done using the constant comparative method, as suggested by Merriam (2009), which facilitates the analysis in a way that is both “inductive and comparative” (p. 175). Throughout this process the researcher took on the role of an observer and interpreter to make conclusions based on the findings. The researcher found that Edmodo can be used to enhance learning, support integrated instruction, promotes collective learning, performs as a collective interface, and can serve as a platform for a professional learning community. Specifically, to answer the research questions, online qualitative feedback from discussion responses, self-reflections and interactions were examined using content analysis. This technique, where the observer identifies patterns and consistencies among the data, was used to code these patterns into themes and describe the interpreted impact of the feedback (Schreiber & Asner-Self, 2011). Qualitative data analysis software, ATLAS.ti®, was used to organize and code the data, and to reveal systematic relationships and consistencies among the data. Utilizing the software, abbreviated, lettered designations were used to organize and manage the collected information. Descriptive statistics (e.g., gender, grade level taught, subject area, years of experience, experience with OSNs, etc.) were additionally examined to describe the demographics and background of the participants.

Summary

Considering the influence instructors’ perspectives have on the effectiveness of a technology, it is essential to examine these perceptions to influence the value of a
technology being used for teaching and learning. This study evaluated participants of an online professional development workshop, designed to support a professional learning community, to reveal their perceptions of the OSN that they were learning within. Their feedback from online dialogue and survey data was utilized to understand whether the OSN was perceived as an instructional platform, whether the OSN supported a professional learning community and whether the professional development influenced the instructors’ perceptions. Chapter 4 explains the results of the study.
Chapter IV

Findings

Introduction

The purpose of this study was to examine instructors’ perceptions of an OSN as an instructional platform, the potential of the OSN promoting a professional learning community, and the changes in instructors’ perceptions of an OSN as an instructional platform over the course of an online professional development workshop on the particular OSN. The data collection began March 2014 and continued until June 2014, with the close of the workshop at the end of May 2014. Online discussion posts, self-reflections and interaction data were documented along with pre- and post-intervention survey data. Additionally, an online, audio-recorded interview from an instructor was collected. Using comparative content analysis, the collected data were coded and analyzed. Considering unforeseen factors can influence participants’ perceptions of technology in education, the researcher was cautious of this throughout the data analysis.

Data Presentation

Participant demographics.

A total of nine instructors completed the pre-intervention survey; however, only five completed the post-intervention survey. As examining the participants’ change in perceptions is one of the research questions, only data from those who completed both the pre-intervention and post-intervention survey were used for the data analysis. The five participants were from three different school districts, in a northeastern state of the USA. The participants consisted of three females and two males; two participants were
in their 20s, one was in their 30s, and two were over the age of 50; three participants had
more than 10 years of teaching experience (Table 1).

Table 1

*Participant Demographics (N = 5)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>31-50</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>&gt;50</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Years of Teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;10 years</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>10-20 years</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>&gt;20 years</td>
<td>2</td>
<td>40</td>
</tr>
</tbody>
</table>

The participants were also questioned on their experience with professional
development courses on OSNs and technology. All participants reported that they had
not taken any professional development courses on OSNs in the past month, and four
participants indicated that they had not taken any in the past year. When asked about
their experience with professional development courses on a broader spectrum, including
courses on any technology, two still reported none; the other three participants reported
taking one or more professional development courses on technology in the past year. See
Table 2 for the full description.
Table 2

*Participant experience with professional development courses (N=5)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Scale</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many professional development courses on OSNs have you taken in the past month, excluding this one?</td>
<td>0</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>1-2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>3 or more</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>How many professional development courses on OSNs have you taken in the past year, excluding this one?</td>
<td>0</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>1-2</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>3 or more</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>How many professional development courses on technology have you taken in the past year, excluding this one?</td>
<td>0</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>1-2</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>3 or more</td>
<td>1</td>
<td>20</td>
</tr>
</tbody>
</table>

When asked about their usage of classroom computers for personal use, all five participants reported that they utilize their classroom computer for personal matters on a daily basis whereas, only two of the participants indicated they used the classroom computer for teaching students on a daily basis. Regarding participants’ reported use of OSNs, four participants utilized OSNs on at least a weekly basis for personal matters, yet four reported to never use OSNs for teaching students. See Table 3 below for a more detailed description.
<table>
<thead>
<tr>
<th>Question</th>
<th>Scale</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you use a classroom computer for personal use?</td>
<td>Daily</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Weekly</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Monthly</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Rarely</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>How often do you use a classroom computer for teaching students?</td>
<td>Daily</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Weekly</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Monthly</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Rarely</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>What do you use the computer for? (Check all that apply)</td>
<td>Planning</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Grading</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Contacting Parents</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Classroom Teaching</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Communicating with Colleagues and/or Administration</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>I do not use the computer in my classroom</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>How often do you use online social networks for personal use?</td>
<td>Daily</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Weekly</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Monthly</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Rarely</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>How often do you use online social networks for teaching students?</td>
<td>Daily</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Weekly</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Monthly</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Rarely</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>4</td>
<td>80</td>
</tr>
</tbody>
</table>

Generally, the participants admitted to regularly using OSNs, as three participants utilize at least one OSN every day. For teaching, however, the majority of participants did not indicate they routinely use OSNs, considering only one out of five declared that they use OSNs for teaching students. Additionally, only two participants revealed they
utilize OSNs for professional learning, yet four participants believed they were able to properly use OSNs. See Table 4 below for a more detailed description.

Table 4

*Participants’ Routine Use of OSNs (N=5)*

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>I use at least one OSN every day.</td>
<td>No</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>I frequently check OSNs (e.g., multiple times a day)</td>
<td>No</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>I use more than one OSN on a regular basis.</td>
<td>No</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td>I am able to use OSNs well.</td>
<td>No</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td>I use OSNs for teaching.</td>
<td>No</td>
<td>4</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>I use OSNs for professional learning.</td>
<td>No</td>
<td>3</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>2</td>
<td>40</td>
</tr>
</tbody>
</table>

**Participant profiles.**

This section describes each individual participant. The participant summaries, annotated below, are based upon self-reported information gathered via the pre-intervention survey. Participant identities were kept confidential and the participants were, thus, assigned pseudonyms used to portray their experience.

*Louise* is a female, between the age of 21 and 30 with 5-9 years of teaching experience; her subject discipline is mathematics. She utilizes the computer at school for both personal use and teaching students on a daily basis. She has not taken any professional development courses on technology within the past year (excluding the one
being studied) and has not used OSNs to teach students; although she does use OSNs for personal use on a weekly basis. Louise expected to learn from and do well in this workshop; however, she rejected the possibility of utilizing OSNs in her classroom following the workshop. She disclosed high levels of self-efficacy of self-paced learning in an online environment and to some extent agreed that she had a personal interest in completing the workshop.

   *Parker* is a male, between the age of 21 and 30 with 5-9 years of teaching experience; his subject discipline is special education, specifically mathematics and language arts. He utilizes the computer at school for both personal use and teaching students on a daily basis. He has taken three or more professional development courses on technology in the past year (excluding the one being studied) and has been employing OSNs both for personal use and to teach students on a regular basis. Overall, Parker had positive expectations in terms of learning and his ability to perform in the workshop and perceived OSNs to positively influence his teaching. When questioned on his intention for taking the workshop, he expressed that he had a personal motivation to participate. Finally, he acknowledged that he was capable of learning and performing well in an online self-paced learning environment.

   *Irene* is a female over the age of 50 with more than 20 years of teaching experience; her subject discipline is family and consumer sciences. She utilizes the computer at school daily for personal tasks, yet only on a monthly basis for teaching. She has taken one to two professional development courses on technology in the past year and none on OSNs (excluding the one being studied). Regarding the use of OSNs she has never utilized them for personal purposes or for teaching students. Irene disclosed high
expectations in terms of learning and her ability to perform in the workshop and revealed a personal motivation to take the workshop. She also perceived OSNs to improve her teaching and as easy to use. Despite this confidence she reported no OSN usage for personal, professional, or instructional purposes. Lastly, she had high perceived self-efficacy of learning in an online self-paced environment.

Ann is a female over the age of 50 with more than 20 years teaching experience; her subject area discipline is science. She utilizes the computer at school for personal tasks on a daily basis; however, she uses the computer only on a weekly basis for teaching. She has taken 1-2 professional development courses on technology in the past year and none on OSNs (excluding the one being studied). Regarding the use of OSNs she utilizes them on a daily basis for personal purposes but never for teaching students. Ann disclosed high expectations in terms of learning and her ability to perform in the workshop and revealed a personal motivation to take the workshop. She also perceived OSNs to improve her teaching yet, she expressed uncertainty regarding her ability to learn to operate OSNs. Despite this concern, she had high perceived self-efficacy of learning in an online self-paced environment.

Edward is a male between the ages of 31 and 40 years with 10-15 years of teaching experience; his subject area discipline is physical education/health. He utilizes the computer at school for personal tasks on a daily basis, yet, to teach students he uses it on a weekly basis. He has not taken any professional development courses on technology or OSNs in the past year (excluding the one being studied). Regarding the use of OSNs he utilizes them on a weekly basis for personal purposes but never for teaching students. Edward disclosed positive expectations in terms of learning and his ability to perform in
the workshop and revealed a personal motivation to take the workshop. He also perceived OSNs to be useful to his teaching and, to some extent, agreed they are easy to use. He routinely utilizes OSNs for personal use but never for teaching or professional learning. Finally, he revealed high perceived self-efficacy of learning in an online self-paced environment.

Throughout the study, participants were asked to provide self-reflections and were given tasks to complete in order to facilitate discussion and interaction. Some participants were more engaged than others providing a higher quantity of feedback. The quality, not the quantity of the feedback, however, is considered most valuable to this research process. All participants provided some perspective throughout the workshop and therefore, each of their contributions are considered equally important in addressing the research questions. Although the three research questions are discrete in nature, some of the participants’ feedback overlaps into all three areas; the feedback, however, is reported in the sections below.

**Research question one.**

*How do instructors perceive the OSN as an instructional platform?*

This section describes participants’ self-reported perceptions of Edmodo that transpired from their responses within the online workshop. In the course of answering the research question, two themes emerged indicating Edmodo as an instructional platform: Enhanced Learning and Integrated Instruction.

**Enhanced learning.**

Each of the five participants made at least one comment indicating they perceived Edmodo to enhance the learning process. Parker disclosed he would use Edmodo most
often for “…posting videos, information, and other media so kids can interact with it outside of school.” He also understood Edmodo as a medium that would connect individuals to learning, providing an innovative channel for interaction and digital-based communication, as he stated “I think Edmodo will function as an instructional platform by connecting students and families to their learning. The communication and resources available on Edmodo will help kids learn content in new ways.” Irene had concerns regarding the lack of equipment she had readily available to her within her face-to-face classroom and therefore recognized the potential of Edmodo being used outside of the classroom to extend in-class explanations. She explained, “If I am running short on class time, I see Edmodo as an opportunity to complete a lesson or expand on a lesson. Especially if I don’t have the necessary equipment in class to demonstrate.” Ann revealed a different perspective; rather than extending the learning process following class, she expressed the potential of preparing students prior to class with the support of Edmodo in order to afford more hands-on time in class. Ann explained, “I would also like to have them view virtual dissections the day before our actual dissections so that they will be prepared which will allow more time for the actual dissection.” Her statement indicates the instructional technique of a flipped classroom, where students prepare for an in class topic by researching and discussing it prior to actual instruction on the topic.

Edward revealed a desire to take his traditional face-to-face physical education curriculum outside of the classroom with the use of Edmodo. He provided details as to how he would utilize Edmodo in his subject area: “We will use Edmodo to discuss trends in fitness, feelings on physical activity/education in general, and be guided through the process of creating a personal fitness plan.” In response to Edward’s plan to expand
traditional physical education curriculum, Louise expressed her opinion that Edmodo could improve the learning process, “I've seen a lot of students who feel the concepts they learn in gym class only stay in the gym, and never use them outside of school. This [Edmodo] will help students focus your concepts in real life.” Although Louise acknowledged the potential of Edmodo being used to enhance learning of gym concepts, she did not perceive Edmodo as an instructional platform in her classroom. In fact, she expressed uncertainty surrounding the addition of yet another technology:

I see that Edmodo has a lot of useful features- a way to post and share assignments, a way to post grades, or otherwise track student progress. However, I feel that all of these features can be used through other tools. Drop box allows students to turn in work, and a class website shares assignments. We already have grade software that our district requires us to use in order to share grades with students and parents. Many people will not want to use Edmodo in addition to other things they are already using.

This account, however, contradicts other participants’ feedback indicating Edmodo’s ease of use and the efficiency it lends with the capability of housing many technologies and resources in one place.

*Integrated instruction.*

Throughout the workshop participants were asked to develop a lesson idea to be implemented within Edmodo. Specifically they were encouraged to design the lesson following the guidelines of ISTE Standards for Students with intent to reach a desired level of Bloom’s Taxonomy (Creating, Evaluating, Analyzing, Applying, Understanding, and Remembering). All five of the participants demonstrated the ability to develop a
lesson that integrated Edmodo into their current curriculum. ISTE Standard 2 (Communication and collaboration) and ISTE Standard 4 (Critical thinking, problem solving, and decision making) were each used as a foundation in three out of the five lessons, and ISTE standard 3 (Research and information fluency) was used once as well.

Regarding the participants’ desired level of Bloom’s Taxonomy, two lessons were designed to achieve the “create” level and three were designed to achieve the “apply” level. Each of the participants developed a blended activity; that is, they intended to have the teaching and learning process to take place both in the classroom and online via Edmodo.

Each lesson developed was unique although there were some consistencies among them. For example, Edward developed a lesson to completely replace in-class discussion with online discussion, whereas Parker used Edmodo for extending a discussion from in-class to outside of class. Parker explained his intention to facilitate interaction among his students while they work together in teams to work out a particular math problem:

For my Edmodo learning module, I plan to facilitate instruction by having each team post their thoughts and reactions to the problem on a discussion board I create on the group page. On that page, each team will be able to post their prediction to the problem presented in class. Students will also be able to see other teams’ responses as well. In addition, I will post some guiding questions on the group page for each team to consider and to post reactions to as they work on the problem. These questions will help them navigate through the task and help me understand if they are on the right track in solving the problem. With the help of Edmodo, the teams will be able to replay the video in case they want to pause
or review certain parts of it. After solving the problem and when the teams are finished, I will have them post a reflection on the task to explain if their prediction was accurate. Also, I plan on posting a quiz on Edmodo that has a few working backwards math problems for students to complete. As an extension, I will add in some extra activities for the teams who finish early and would like to try additional problems.

Ann also wanted to extend in-class instruction to students’ homes by developing a lesson that fosters group collaboration. In her lesson, students are asked listen to a radio segment, answer discussion questions at home, and create an according poster with their group in class. Similarly, Irene wanted to take online discussion to teach students about important health conditions. Louise, on the other hand, had concerns of her students who generally had lower cognitive skills being apprehensive of communicating and participating in class. She indicated Edmodo could be used as an alternative instructional option for those who may feel more comfortable communicating and completing assignments at a distance. Louise also revealed how she planned to facilitate interaction:

I will facilitate interaction on Edmodo by grading students on their posting. My class has a lot of effort grades, and if students post insightful comments, they will earn high marks. For example, I could require students to post on two other students' comments, and then give extra credit if they post more often. The more intelligent the posts, the more points earned.

Louise’s technique for encouraging interaction represents conflicting perspectives; on one hand she emphasizes that “insightful comments will earn high remarks” yet, she also plans on rewarding students for the quantity of postings.
Three of the participants developed a form of evaluation to measure their students’ learning. Irene developed two multiple choice quizzes for two different courses. Parker employed both a math-based rubric and a multiple choice quiz for student assessment and evaluation, respectively. He explained how these measures would support him in understanding his students’ ability:

Even though I am using a quiz to grade my students, some features of this rubric [a math blog rubric] can help me learn more about my students’ understanding of working backwards. These assessment measures help develop my learning module by informing me how well I know that my students understand the lesson I taught and if they have met the learning goal for the lesson.

Louise, on the other hand, did not convey the evaluative functionality of Edmodo as she expressed,

While this assessment will benefit my students’ learning, I do not see any specific advantages to using Edmodo. There are several free quiz programs like this, and taking the time to quiz on the computer instead of paper will merely waste class time as we have to rely on technology which will not always be working. I already analyze quiz data using a script I wrote, so it won't help me analyze the scores either.

Table 5 provides a summarized description of each lesson idea.
### Participants’ Lesson Construction

| Participant | ISTE Standard | Bloom’s Taxonomy  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Edward</td>
<td>Research and Information Fluency</td>
<td>Create</td>
</tr>
<tr>
<td>Irene</td>
<td>Critical Thinking, Problem Solving, and Decision Making</td>
<td>Apply</td>
</tr>
<tr>
<td>Ann</td>
<td>Communication and Collaboration</td>
<td>N/A</td>
</tr>
<tr>
<td>Participant</td>
<td>ISTE Standard</td>
<td>Bloom’s Taxonomy Level</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------</td>
<td>------------------------</td>
</tr>
</tbody>
</table>
| Parker      | Critical Thinking, Problem Solving, and Decision Making OR Communication and Collaboration | Apply & Create          | For my learning activity, I plan on having students solve a mathematics problem by using the strategy working backwards. I will show students an animated video where the character has to solve a problem. In the video, the main character is not sure if he solve his problem correctly, so the students will have to work backwards in order to solve the problem. For the lesson I would split the class into four small groups and put them with a laptop so they can work on Edmodo as a group in a class I created for this lesson. Students will have the opportunity to review the video on Edmodo, and they will post their predictions to the problem using Edmodo. During the class, students will solve the problem using a teacher made graphic organizer. After solving the problem, students will write how they solved the problem. If time, students can go onto Edmodo to reflect on their predictions to explain if they were right or wrong. They can also comment on other students’ postings. In addition, I will have a quiz available with a few working backwards problems that students can try on Edmodo for an extension activity. I will be creating a blended activity where students can discuss solutions to other problems online and extend what was discussed during the face to face lesson."

| Louise      | Communication and Collaboration | Apply                   | I teach a remedial algebra class at the high school level, so getting students to ask for help is difficult, as being in this class alone is cause for embarassment in many cases. I am going to give students five possibly assignments, and they must complete three of them, either in person or online. This way I can make sure students are actually doing their work in class, but if they didn’t understand the concepts they can work on the online assignments at home and ask me questions privately through Edmodo.                                                                                                                                 |

As part of the final reflection participants were prompted to reveal their experience with and perceptions of Edmodo and whether they actually went through with...
the implementation phase. Three of the participants indicated they actually had time and interest to implement the lesson. Parker expressed his experience with implementing Edmodo to be positive. While describing his perception of his students with his lesson using Edmodo, he expressed that they seemed to enjoy the lesson and appreciated having resources housed within Edmodo to access at home to support them in completing homework assignments. Parker elaborated:

I actually implemented Edmodo and my learning module with my students. The students really enjoyed posting comments to each other and discussing educational topics on the internet. Also, students like watching the videos from class at home when they are studying or working on their homework. For my learning module, I worked with a class of 31 students and created an Edmodo group for those students to join. The students worked in six groups and completed a mathematics problem that focused on working backwards to solve problems. During the lesson, students posted predictions, watched videos, completed a quiz, practiced skills on a homework assignment, and posted their final reactions to the lesson on Edmodo. Altogether, I got positive feedback from students and teachers who were on hand to observe the lesson.

Parker indicated that throughout this lesson he supported collaborative group work and student interaction through the use of Edmodo. Similar to Parker’s experience, Irene communicated that her students appeared to enjoy her lesson as well. She used Edmodo as a platform for creating fictitious characters, with which students had to develop a meal plan and address any health problems that this fictitious person had. Irene explained:
… they had to come up for meals for breakfast, lunch, and dinner to solve this person’s [the fictitious character] problem but they had to take into account likes and dislikes and you know if somebody was, if somebody was supposed to cut back on their salt because of high blood pressure or hyper tension then they had to take that into account in their meal plan. So, and they seemed to enjoy doing it, they liked, you know they liked using the technology. I think they liked looking up fictitious characters and they had to have, they had to have a couple pictures in their [sic] too representing the health problem.

Ann described how she implemented Edmodo in her science class and expressed the ease of utilizing the platform, as she stated:

I did implement it in my science classes. The students didn't need any coaching. They just jumped right in and began communicating with one another. They also used to [sic] to work out the details of a science poster project I assigned recently.

Ann’s realization while implementing Edmodo also indicated that online communication came naturally among her students.

Louise, on the contrary, did not implement her lesson as she still presented concerns with the overwhelming amount of technology she already is required to use and the time of the academic year:

I apologize, but I will not be implementing my learning module with my students at this point. The first retake date for the Algebra Keystone Exam is May 13, and before then I have very strict guidelines I must follow to prepare for the test. Giving students additional assignments at this time will only stress them out when they are already very stressed. If this workshop had been done earlier in the
school year, when I had more time and freedom with my lessons, I would have implemented it.

Louise expressed unease regarding the time required for mandated testing during the period of the workshop.

Edward did not specify whether or not he implemented the platform in his classroom, yet when asked which online social networks he used to teach students in the post-intervention survey, he indicated he used the platform for instructional purposes as he selected Edmodo.

**Research question two.**

*To what extent does the OSN support a professional learning community?*

This section recounts participants’ dialect indicating Edmodo’s ability, or lack thereof, to support a professional learning community. In the course of answering the research question, two common themes emerged throughout the data analysis; Edmodo supported the participants in collective learning and served as a collective interface for professional growth.

*Collective learning.*

Ann expressed excitement with her new found knowledge of the Edmodo applications and sent to the group page, “I am finding MANY resources here with the apps. I just discovered No Red ink. It looks amazing!” Irene took her learning beyond the confines of the Edmodo workshop as she shared, “I also found other sites about Edmodo and spent a small amount of time listening and learning the material. At least I know where to go for more information or ideas.” Louise exemplified that she related to
another participant’s lesson idea and offered her personal experience with a particular instructional strategy:

I like that you are having the students work backwards in this lesson. Have you ever tried giving them word problems, and provided the answers, telling them it was their job to find how to solve the problem? I've had mixed results with that tactic.

By responding to another group member’s post, asking a question and then providing a personal experience Louise’s indicated she wanted to learn more from her group members. While revealing their own beliefs regarding lesson ideas, interaction, and assessment the participants had their own interactions and discussion about the provided topics and tasks. Throughout the workshop the participants commented on each other’s posts. Figure 11 shows a discussion between participants revealing a collective understanding, as participants made connections to Louise’s lesson idea that she shared to the group page. One participant corroborates Louise’s idea surrounding the communication features of Edmodo, noting that the features Edmodo offers can provide a “safe” place for those who may be embarrassed to communicate face-to-face in class; another participant identifies with the need to consider issues surrounding special needs students; and another participant realizes that providing students options in the learning process may increase special needs students’ confidence and engagement. The one participant even goes on to suggest allowing students the authority to teach in Edmodo may be rewarding and increase their confidence as a learner. Throughout this conversation the instructors indicate the potential of Edmodo to support students who possess special learning needs and/or those students with more introverted personalities.
Figure 11. Online Conversations in Edmodo

Note. To protect the privacy of the participants, sensitive information is redacted.
The conversation listed below in Figure 12 shows participants’ reactions to a group member’s lesson idea, where additional ideas to improve the lesson are suggested. Irene, who provided her initial suggestion for a learning module, was given ideas to improve her lesson by other group members.

Figure 12. Online Conversation in Edmodo

Note. To protect the privacy of the participants, sensitive information is redacted.

Collective interface.
Throughout the workshop, all five of the participants used Edmodo as an interface for collective inquiry and interaction. Particularly, the participants were posting questions that were relevant to their development, responding to other group members’ ideas and thoughts, and even interacting outside of the group by joining other groups relevant to their interests. Additionally, Edmodo served as an interface for the participants to connect with other colleagues in the field. As of November 2014 all five participants used Edmodo as an interface for connecting to an outside community of teachers; Ann joined 32 communities, Parker joined 24, Irene joined six, and Louise and Edward each joined one outside of the Edmodo workshop group.

Irene specifically mentioned her involvement in one of the groups she joined stating, “I’ve gotten onto a group, a family consumer science group, and I’ve posted some questions there and I’ve actually asked other people for advice and I’ve answered other people’s questions as well.” Irene also explained how she was receiving emails that notified her when certain people responded, and when new content was provided in the groups that she had joined. She indicated how she enjoyed this feature:

I like the fact that I was getting those emails [notifications from Edmodo]. It was helpful to me and it just, like I said, it gave me other ideas so that if I wanted to do something, you know I could get help from other people instead of, like keep [sic] my immediate coworkers, let’s say.

Louise, who revealed uncertainty regarding the use of Edmodo for teaching demonstrated a different reaction to the use of Edmodo for professional purposes. She reflected:

I might use Edmodo for online discussion amongst my classes, but I am unsure it would be worth setting up accounts only for that feature. However, I still might
implement Edmodo in the future. If anything, I would say that now that I know Edmodo better, I am less likely to use it with my students, as I see its limitations and already use alternatives I feel are better. However, I am going to keep my account active, if only to continue to share ideas with other educators, as well as picking up new techniques and resources from those who are using it similarly. She expressed an ambiguous perception of Edmodo and an unclear reasoning regarding whether or not she will be using Edmodo for teaching. It is clear, however, that she will keep her account open for potential growth and learning opportunities.

Three of the participants’ (Irene, Parker, and Louise), feedback reveals Edmodo as an interface for inquiry and interaction in which they posted questions to the news feed, interacted by offering advice and improvements to other group members’ ideas and related to one another through discussion. Table 6 offers a summary of the commentary.
### Table 6

*Commentary Demonstrating Inquiry and Interaction*

<table>
<thead>
<tr>
<th>Participant</th>
<th>Code&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Lesson Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irene</td>
<td>TINQ</td>
<td>Is there any way to control the time frame that a quiz is available to take? I don't want an absent student to take it at home with notes on their lap.</td>
</tr>
<tr>
<td></td>
<td>TINQ</td>
<td>Another question. I think I remember seeing the answer somewhere, but I don't remember where. If my classes are locked and some students did not yet join, Can I unlock the class and let students in or is it not that simple?</td>
</tr>
<tr>
<td></td>
<td>TINQ</td>
<td>Can I create 2 quizzes and tell students to take a specific quiz or should I create a small group within the larger group and set the quiz up there.</td>
</tr>
<tr>
<td></td>
<td>TINT</td>
<td>I also have students with special needs. I understand the issues involved.</td>
</tr>
<tr>
<td></td>
<td>TINT</td>
<td>I think your idea is very interesting. Working backwards is going to be a good exercise for students.</td>
</tr>
<tr>
<td>Parker</td>
<td>TINQ, TINT</td>
<td>What kind of algebra activities do you plan on having your kids completing?</td>
</tr>
<tr>
<td></td>
<td>TINT</td>
<td>I kind of have an understanding of where you are coming from since I am a special education teacher and my students are sometimes embarrassed to be &quot;different&quot; than others. I agree with you that giving students choices will help them feel comfortable.</td>
</tr>
<tr>
<td></td>
<td>TINT</td>
<td>Posting comments and replying to questions will be useful to clarify any misconceptions.</td>
</tr>
<tr>
<td></td>
<td>TINT</td>
<td>If you find the time, maybe you can contact local restaurants and/or senior care homes and see if they would be willing to talk with students about meal planning.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students could make the meal for that person and maybe come to your school for a special activity.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I think that this will be an interesting project for kids to complete.</td>
</tr>
<tr>
<td>Louise</td>
<td>TINQ, TINT</td>
<td>Have you ever tried giving them word problems, and provided the answers, telling them it was their job to find how to solve the problem? I've had mixed results with that tactic.</td>
</tr>
<tr>
<td></td>
<td>TINT</td>
<td>A great question! With some programs I have used you can limit things to being used on only the school’s IP address, so I wonder if Edmodo does something similar.</td>
</tr>
</tbody>
</table>

<sup>1</sup> TINQ = Teacher Inquiry; TINT = Teacher Interaction

Notes.
Research question three.

*How do instructors’ perceptions change over the course of the online workshop?*

A shift in participants’ perceived use of Edmodo was witnessed as all of the participants indicated in the pre-intervention survey that they never used an OSN for teaching students. As the workshop progressed, however, participants revealed their desire to use Edmodo in some capacity and four of the five admitted to using Edmodo for teaching by the close of the workshop. When asked which OSNs they use for teaching students, two participants who reported in the pre-intervention survey that they do not use OSNs for teaching students later disclosed in the post-intervention survey that they use Edmodo for teaching students. When asked whether they use OSNs for professional learning two of the participants indicated in the pre-intervention survey that they did not, yet they revealed that they did use OSNs for professional learning in the post-intervention survey.

Edward indicated that he used a classroom computer for teaching students and OSNs for personal use on a weekly basis during the pre-intervention survey; the frequency of his use increased upon completion of the post-intervention survey, as he then disclosed that he used the computer to teach students and OSNs for personal use on a daily basis. He also increased his perceived ease of use of OSNs upon completion of the post-intervention survey. Furthermore, his perceived added task value of the online workshop increased considering his responses pre- and post-intervention.

Participants also revealed they perceived to use Edmodo in their classroom in the future. Four out of the five participants disclosed they had never used OSNs to teach
students in the pre-intervention survey, yet participants’ feedback throughout the workshop indicated they intend to use Edmodo in the future. Ann, for instance, disclosed her intention to imminently employ Edmodo:

I realized too late that I should have given them [students] the acceptable use information and the parent permission slip. I will use those with my classes next year. Over the summer, I will plan on ways to use the platform [Edmodo] on a regular basis in my science classes.

Irene also indicated that she would be using Edmodo in the future for teaching, which is a change from her response on the pre-intervention survey, where she reported that she never used an OSN for teaching students. In response to other group members feedback regarding her learning module idea she said, “Thank you for your ideas. These are things that I did not think about. If I run out of time this year, I can always incorporate these ideas next time.” Her response indicates that she expects a time in the future where she will be using the platform. Irene additionally states her anticipated future use and her change in self-efficacy regarding the use of Edmodo, “…I just feel much more at ease now with using Edmodo and I could talk about it… I plan to implement Edmodo in other classes, since I feel confident about my experience. I certainly see a great potential.”

Parker indicated a shift in his instructional practice when he stated, “There will no longer be a traditional 60 minute math class, but rather an ongoing discussion of math topics that will (hopefully) further students’ understanding of key concepts.” In his response he conveys his expectancy of taking learning beyond the traditional classroom. Parker further highlights the advantage of completing the workshop, “I did find a benefit to learning the material in this workshop as I now use it with my students to share
information, communicate class topics, and to assist students at home with classwork [sic].”

Summary

Chapter 4 reported the findings from the study. The first portion of the chapter described the participant characteristics, background and profiles to position the following sections. The rest of the chapter was broken into three portions according to the research questions. The first was the report of themes emerged under the idea of Edmodo as an instructional platform: enhance learning and integrated instruction. The second report was about the themes emerged under the idea of Edmodo supporting a professional learning community: collective learning and collective interface. The last report was for the participants’ perception changes measured by feedback prior to, during, and following the workshop, which consisted of shifts in the use of Edmodo for teaching, increased self-efficacy of using the technology, and modified instructional practice.

Students are learning and communicating in continually digital and technological ways and so addressing these new-age needs is becoming necessary in education. Instructors’ perceptions can influence the success or lack thereof in technology integration and, with this in mind, Chapter 5 discusses the emerging themes and recommendations for the future of the field.
Chapter V

Conclusions and Recommendations

Introduction

The goal for this study was to better understand the potential for instructors to use technology, especially OSNs, to support today’s learners who communicate and share knowledge in increasingly digital ways. In an effort to reveal and analyze instructors’ perceptions of an OSN as an instructional platform and change in those perceptions when exposed to an OSN, Edmodo was chosen as an example OSN and used to facilitate an online training workshop. The extent to which Edmodo supported a professional learning community was then analyzed. The data was collected online through participants’ feedback, self-reflection, and discussion within the workshop forum and via one individual’s participation in an online audio-recorded interview. Pre- and post-intervention surveys were also administered to gather participant demographics and to reveal changes in participants’ perceptions of the OSN as an instructional platform. Other actions, such as connections the participants made outside of the workshop forum, were also monitored and reflected in the analysis.

This chapter explains the findings of this study in relation to relevant literature in the field of education and instructional technology. Implications from the findings and recommendations for practice are provided as well. Specifically, suggestions for administrators and instructors regarding the following are clarified: 1) The use of the OSN as an instructional platform, 2) The extent to which the OSN supported a professional online community, and 3) The influence the professional learning
community had on the instructor’s learning. Finally, this chapter offers directions for future research.

Discussion

In this section the findings are explained in connection with relevant literature. The research questions that guided the study were:

1. How do k-12 instructors perceive the OSN as an instructional platform?
2. To what extent does the OSN support a professional learning community?
3. How do instructors’ perceptions change over the course of the online workshop?

In the course of answering the research questions the following themes, discussed in chapter 4, emerged: 1) Enhanced learning, 2) Integrated instruction, 3) Collective learning, 4) Collective interface, and 5) Influence of professional development.

RQ1: How do k-12 instructors perceive the OSN as an instructional platform?

Addressing instructors’ perceptions is critical to the success of technology-integrated instruction as their position can influence the effectiveness of a chosen technology (Inan & Lowther, 2010). Particularly in today’s education environment where comprehensive learning spaces in which knowledge can be collectively shared and constructed (Le Rossignol, 2009) are increasingly required, examining instructors’ perceptions on these spaces becomes even more important. This study demonstrated that Edmodo, an example OSN, is capable of providing this type of comprehensive learning space. The participating instructors’ actions and conversations embodied a general tone that was positive towards Edmodo as an instructional platform.
Theme 1: Enhancing learning.

Providing freedom to learn anywhere and anytime is critical in meeting the needs of today’s learners as they innately rely on digital tools to access information (Palfrey & Gasser, 2013). In fact, digital-age learners have been classified as ‘digitally-minded’ learners who desire to be in command of their learning (Andone, Dron, Pemberton, & Boyne, 2007). The online workshop dialogue exposed many instances where participants perceived the Edmodo platform to enhance the learning process. Specific to educational practices, Edmodo was perceived to extend learning beyond the classroom, allowing students more opportunity to access and interact with course-related information.

Finding 1.1 Edmodo promotes continual interaction.

As the learning process is transforming, the act of knowledge construction is no longer limited to brick-and-mortar classroom time. It is, in fact quite the opposite, as the act of constructing knowledge in today’s world is infinite. Individuals have the accessibility to online platforms that provide resources and spaces where shared learning can occur anywhere, anytime given the appropriate environments are available. Research evidences the importance of unbounded learning spaces by means of technology (Sharples, Taylor, & Vavoula, 2010); the researchers re-conceptualize learning to be reliant on interactions, assuming “the learning system as a whole evolves in a continuum of advancing knowing through conversations and interactions” (Sharples, Taylor, & Vavoula, 2010, p. 242).

As is commonly noted in the field of online learning, interaction within online settings is critical to the effectiveness of a particular technology (Bodomo, 2008; Garrison & Cleveland-Innes, 2005; Swan, 2001), and facilitating interaction in online
environments can provide more meaningful instruction (Johnson & Aragon, 2003). This study demonstrated that Edmodo can support continual interaction among its users; the participants validated the use of Edmodo to extend the learning process beyond their traditional face-to-face class time. This extended learning opportunity over Edmodo can provide students with more ability to interact with class-related materials and class members. The study also provided the potential for instructors using Edmodo as a platform to promote student-content interaction and problem-based learning. It is noted, however, that the social dynamic among the users of the online platform should not be neglected, as common interactions can develop both a positive and negative climate among users (Woods & Baker, 2004).

Providing multiple points of contact within an online platform influences the success of online instruction (Moore, 1989). Participants of the study expressed intention to extend in-class discussion to online discussion within the Edmodo platform in a variety of ways (student-student interaction; student-content interaction; student-teacher interaction; and student-interface interaction), showing the potential of Edmodo being able to support multiple means for interaction. While posting quality is more important than posting quantity when interpreting the value of online communications (Garrison & Cleveland-Innes, 2005), which is acknowledged by at least one participant of this study, participants of the study in general expressed the similar perception on Edmodo’s ability to support diverse interactions. This perception of participating instructors draws parallel to the students’ perceptions in Enriquez’s (2014) research, where 75% of students reportedly perceived Edmodo as a tool for seamless interactions.

Conclusion 1.1.
Overall, as researchers have identified OSNs to beneficially influence learning through shared interaction and communication (Fiedler & Valjataga, 2008; Leskovec et al., 2010; Roblyer et al., 2010), participating instructors perceived Edmodo as a platform for stimulating student interactions. In instances where instructors and/or administrators are seeking to implement instruction that encourages interaction, Edmodo may be utilized to support this effort.

Finding 1.2 Edmodo provides a space for student-centric activities.

Student-centered activities have been documented to influence the quality of an online learning platform (Long, 2011). This study showed that curriculum facilitated in Edmodo affords students the opportunity to interact and learn through the support of multimedia (e.g., interact each other virtually by discussing educational topics and posting comments, and watching videos from class at home when they are studying or working on their homework). This is an indication that Edmodo can be used to facilitate social learning, as learners observe the educational content in a social context.

Constructing knowledge has notably transformed from an individual learning process to a social learning process (Kanuka & Anderson, 2007) where knowledge is constructed via interaction and observation. The study showed that Edmodo can be used to facilitate group work with minimal direct instruction. This requires students to be actively involved in the learning process, which is commonly expected from today’s learners (Greenhow et al., 2009). Edmodo was also perceived as a tool for learning outside the traditional classroom (e.g. participate in at-home discussion, develop online projects, interact online with course material). The study revealed that Edmodo can support instructors in transforming traditional face-to-face instruction to be student-
centered. Furthermore, the study showed the platform can be used to facilitate students in applying classroom content to a real-life situation. The participants in this study generally developed and described their learning modules to center around their students. This aligns with the constructivist approach to learning, with the intention being to deliver effective, student-centered instruction in an online platform (Molenda et al., 2013). Vital to the success of the student-centered approach using any educational technology, however, is careful consideration of students’ comfort level with the technology, as it can influence the students’ motivation to use the technology (Groff & Mouza, 2008).

**Conclusion 1.2**

Today’s students desire a more active and responsible role in the learning process (Greenhow et al., 2009); Edmodo, an OSN similar to those that today’s students are already regularly using (Pew Research Center, 2013), offers a means for students to be accountable for their own learning and to play a role in their individual knowledge construction. Based upon the evidence from this study, Edmodo can be viewed as a platform that supports student-centered learning.

**Finding 1.3 Instructors are reluctant to technological change.**

Lack of incentive for integrating the new technology often influences the effectiveness of teaching with technology (Warschauer & Matuchniak, 2010). Although careful consideration was given to minimize the barriers of technology integration (e.g., time, motivation, and resources available for teachers) at the time of designing and implementing the workshop, resistance to technology integration was evident on one participant’s perceptions. The concern on adding another similar technology was
stronger than the perceived benefit of having one technology, which houses various relevant resources in one place. The resistance may be due in part to lack of incentive for integrating the new technology.

**Conclusion 1.3**

The study identified that there are ranges of technologies being used in the classroom, revealing an inconsistency across school districts. This arrangement decreases the chance of administrators and/or instructors reaching a common ground regarding technology use across school systems. The teacher’s resistance to technological change might have been influenced by the assortment of technologies being used across the education system. A coherent reconfiguration of widespread technology use may then be able to lessen the resistance.

**Theme 2: Supporting integrated instruction.**

Supporting a blended learning activity (face-to-face and online learning) is significant in transforming curriculum design to meet the needs of digital age students (Sharpe & Oliver, 2013), although it may not always be the best approach in all circumstances. From the lessons developed by participants in this study, it was evident Edmodo can be used for instructional purposes as all five participants demonstrated the ability to develop a lesson that integrates Edmodo into their current curriculum. Using Edmodo, participants developed a lesson based upon ISTE Standards: 1) ISTE Standard 2 - Communication and collaboration, 2) ISTE standard 3 - Research and information fluency, and 3) ISTE Standard 4 - Critical thinking, problem solving, and decision making. The participants each developed a lesson that supports a blended learning activity (face-to-face and online learning).
Finding 2.1 Edmodo serves as a platform for blended learning.

Relevant literature exposes OSNs to be capable of enhancing the learning process through a blended approach to teaching (e.g., Barczyk & Duncan, 2013), yet there is minimal evidence revealing Edmodo’s level of capability in this same light. The participants’ ability to develop and implement a blended learning activity in this study proposes that Edmodo has similar capabilities as previously studied OSNs. In this study, instructors perceived Edmodo as a platform for providing blended learning activities, as was expressed in the proposed design of their learning modules. Each lesson development was distinct in nature, yet all participants demonstrated a mutual effort to construct a lesson drawing from a blended methodology. The study showed the potential of Edmodo being used to replace in-class discussion with online discussion, support online projects that are traditionally done in the face-to-face classroom, and provide students with multimedia resources such as video, audio, and online content. Each of these was to supplement face-to-face learning time, encouraging learning to continue beyond the classroom walls.

The flipped classroom method, stemming from an active learning pedagogy, is advocated to engage digital age learners (Roehl, Reddy, & Shannon, 2013). While flipping the classroom, instructors often effectively use technology for differentiating instruction (Davies, Dean, & Ball, 2013). This study showed the potential of Edmodo being used prior to class time in order to better prepare students for hands-on activities within the classroom; simply flipping the classroom, however, may not produce the desired effect unless a well implemented pedagogy is correspondingly communicated with the flipped classroom design.
**Conclusion 2.1**

Blended learning has been identified in literature as a more effective and efficient approach than the traditional school system (Singh, 2003). Blended learning is not as new as it is positioned to be; this type of learning stems from the variation theory of learning, which is influenced by the amount of noticeable deviations between students’ knowledge and the provided topic (Oliver & Trigwell, 2005). Online technology may influence the process of blended learning to be greater and more perceptible, as using the online technology raises a greater awareness among learners and provides a largely accessible platform for these differences to be noticed. Edmodo’s ability to support blended learning opens the opportunity for educators to transform the traditional school system for the better. It is, however, important to recognize the facilitation of blended learning may not result in the intended outcome unless the blended learning design is complemented with effective pedagogy.

**Finding 2.2 Edmodo supports group collaboration**

Group collaboration, when supported via the use of technology, has been reported to provide gainful learning opportunities (Abrami et al., 2011; Beldarrain, 2006; Wagner, 2004). OSNs can easily support these group collaboration oriented lesson ideas (Badge et al., 2012; Junco, 2012). As today’s students desire to collectively construct knowledge and value peer feedback, it is important to have online tools in the evolution of today’s learning process (Greenhow et al., 2009). This study showed that Edmodo can be used to support student learning through various avenues: interacting with online course-related material, discussing course topics at-home with classmates, performing in-class group work, and collaboratively viewing and discussing educational content via multimedia.
The comprehensive functionality of the Edmodo platform encourages learning to transpire and continue throughout any environment the students are in.

**Conclusion 2.2**

When instruction is consciously designed to promote collaboration, technologies can support this endeavor to provide students with continual opportunity for knowledge construction. The literature provides evidence of various OSN technologies (e.g., Facebook) successfully promoting group collaboration and yielding a more socially engaging learning experience (Barczyk & Duncan, 2013; Hung & Yuen, 2010). This study demonstrated the lesson designs portray the functionality of Edmodo to support group collaboration.

**Finding 2.3 Edmodo provides opportunity for learner autonomy.**

As students who are more introverted are often intimidated to fully participate in face-to-face classes (Dewar & Whittington, 2000), the benefit of online platforms to enhance students’ confidence to participate has been recognized as they can have more time to manage the way they are represented in the course (Simonson et al., 2000). Effective online learning platforms, in fact, allow for introverted students to develop quintessential representations and consciously prepare their involvement in the course (Dewar & Whittington, 2000). The study showed that Edmodo is perceived to be a platform for influencing students of lower cognitive ability and/or with reserved personalities to have the conviction to perform. While noting students’ apprehension when communicating in class or even one-on-one with the instructor, at least one participant agreed that Edmodo can provide a vessel for more private communication to occur outside of class time. Edmodo may be used as an alternative way to engage
students who are likely less certain in their ability to perform in class, affording them the chance to confidentially ask for help, and to formulate their thoughts prior to addressing the misunderstanding.

Conclusion 2.3.

Online learners are benefitted from being in the distance as they are able to carefully construct a preferred representation of themselves prior to performing in an online environment (Dewar & Whittington, 2000; Simonson, et al., 2000). Like in any online medium, physical distance is no longer a barrier in Edmodo and when well-designed it can help more introverted students to perform. Edmodo allows students who are influenced by social preconceptions found in face-to-face settings to maintain control over their perceived image in the course.

Finding 2.4 time influences the effectiveness of the integration process.

The time and interests required for professional development have both been cited as barriers to effective professional development (Brinkerhoff, 2006). Throughout the duration of the workshop, some participants (three out of the five participants) indicated they actually had time and interest to implement the lesson. One participant, however, identified the challenge teachers face to invest in their own professional growth while at the same time follow restrictive guidelines leading up to state-wide assessments. This is similar to findings in research evidencing the influence of time on the effectiveness of technology integration (Bauer & Kenton, 2005; Beudin, 2002).

Conclusion 2.4

Teachers are required to improve their practice by learning how to effectively integrate technology while complying with external requirements, such as achieving
high-performance scores on state-wide assessments (Ertmer, Ottenbreit-Leftwich, Sadik, & Sendururs, 2012). Although it has been recognized that technology-based professional development is critical for the development of more innovative and student-centered instruction, and the time allocated for technology-based professional development influences its outcome, teachers are often not allowed enough time to successfully complete the technology-based professional development.

**RQ2: To what extent does the OSN support a professional learning community?**

Professional learning communities are often developed to cultivate an environment where teachers are mutually supporting one another to work towards a common standard of learning and to maximize the learning process as a whole (Mitchell, 2012). Not only does this prove more effective for long-term learning but also it provides instructors with the ability to individualize their learning to meet their specific needs. Participants’ actions and conversation documented throughout this study generally revealed Edmodo is capable of supporting a professional learning community. Specifically Edmodo promoted collective learning among the instructors in many ways as they worked together to develop individual learning modules. Edmodo additionally served as a collective interface for instructors to reason, inquire and interact with their peers and to connect with other Edmodo members outside of the workshop group.

**Theme 3: Promoting collective learning.**

Professional learning communities can be distinguished as learning environments where all parties are working together, while possessing equal involvement focused on learning (MacBeath & Dempster, 2007). As none of the participants had used Edmodo
for teaching students prior to the online workshop, as indicated in the pre-intervention survey, constructing learning modules to be implemented within Edmodo was considered to be an application of new knowledge. All five of the participants engaged in shared learning throughout the workshop to develop and discuss a learning module to be implemented in the classroom. Participants collectively worked to learn how Edmodo can be used for instruction through guided research, discussion, and application.

Finding 3.1 Edmodo is a medium for shared professional knowledge growth.

When participants are able to personally connect to the ideas being discussed in the online forum, the existence of a learning community is verified (Mackey & Evans, 2011). In this study, instructors invested a high volume of communications to construct and share knowledge. These communications revealed Edmodo as a platform supporting shared knowledge, as participants were able to relate to each other’s lesson ideas, inquire to learn from peers, and disclose personal experiences regarding particular approaches to teaching.

An environment where participants openly share opinions and knowledge is considered to be “expansive” rather than “restrictive” to the learning process, and provides a more effective means for professional learning (See Gewirtz, Mahony, Hextall, & Cribb, 2008). The study showed Edmodo is able to support education-centered discussions among participants. The participating instructors shared and analyzed each other’s learning module ideas, maintaining the communication features of Edmodo to be accessible and influential for learning to occur.

Social learning is an essential dynamic of online learning communities (Lieberman & Pointer Mace, 2010). Throughout the workshop, the participants provided
suggestions to improve each other’s learning modules, which led to realizations of how to more effectively develop instruction to be implemented within Edmodo. In addition to learning from group members, the participants learned through observation of online material (e.g., video and text-based models), which provided real-life examples of how Edmodo is being utilized for teaching and learning. While moving through the online sessions, each of the participants not only observed tutorials and resources shared by their peers, but also actively participated in knowledge sharing evidencing social learning.

Conclusion 3.1

By providing an open environment for honest conversation to occur, professional learning communities afford the benefits associated with social learning principles (Mackey & Evans, 2011). The participants’ voluntary communications and self-regulated observations in this workshop demonstrated Edmodo’s ability to support a dynamic social space fostering individuals in making connections through shared knowledge and collaboration.

Theme 4: Performing as a collective interface.

One of the common characteristics of professional online learning communities is providing a collective interface for resource sharing and knowledge construction, while cultivating a cultural connection among instructors (Mitchell, 2013). Utilizing tools that support a collective alliance among instructors can lead to a more consistent and balanced outlook on education, less individualized forms of professional development, and increased social system where educators are able to work toward a common goal. As Mitchell (2013) defined professional learning communities to be environments that
school systems call upon to support shared knowledge and leadership among teachers, Edmodo appears to possess similar functionality.

**Finding 4.1 Edmodo encourages common knowledge and understanding.**

Professional learning communities provide an accessible environment for dialogue surrounding the learning process to flow and for those involved to make connections (MacBeath & Dempster, 2009). From this perspective, the amount of communication and connections shared throughout the workshop via Edmodo makes it plausible that Edmodo supported a learning community. Via Edmodo, participants were able to engage in relevant dialogue and make connections based on their individual learning needs. In addition to the connections made within the workshop group, all of the participants made multiple Edmodo connections outside of the workshop group. This reveals the capability of Edmodo to bridge the distance barrier across school districts and even across countries throughout the world.

Inquiry and collaboration impact the effectiveness of a learning community (Grierson & Woloshyn, 2013). Throughout the workshop, Edmodo allowed participants ask questions to increase their knowledge. Three participants in this particular study inquired and collaborated frequently within Edmodo by asking questions, offering advice, and reasoned with one another while working towards the goal of building a learning module. In some instances the participants expressed their understanding in relation to another participant’s experience. Participants also disclosed general inquiry to their peers regarding their learning module ideas and plans for implementation (e.g., “What kind of algebra activities do you plan on having your kids complete?”). By providing a place for
participating instructors to learn from one another, Edmodo supported inquiry and reasoning among instructors to some extent.

Professional development centered on common goals improves the teaching and learning process (Mitchell, 2013). Edmodo, as a platform supporting professional development, served as an interface for instructors to access external resources and to interact with peers outside of the workshop group to improve their own practice. This was also evidenced in participants’ intent to use Edmodo to learn techniques that outside practitioners are regularly using, and to draw from each other’s shared resources and knowledge to improve their own practice. In addition, Edmodo made it possible for participants to join a breadth of categorized groups, focused on a specific area, where participants can interact with and learn from peers in the field of education.

**Conclusion 4.1**

Shared knowledge, common goals, and inquiry-based dialogues are indicators of a professional learning community (Grierson & Woloshyn, 2013; Mitchell, 2013). Edmodo was able to support professional learning community by providing the features supporting knowledge sharing, common goals, and inquiry-based dialogues.

**RQ3: How do instructors’ perceptions change over the course of the online workshop?**

Instructors’ perceptions are known to impact the effectiveness of technology integration (Ertmer & Ottenbreit-Leftwich, 2010; Inan & Lowther, 2010). In this study, the main indicator of change in perceptions came from the participants’ responses found in the pre- and post-intervention surveys, and participants’ dialogue disclosed within the online workshop forum. Although four participants had never used OSNs to teach
students in the pre-intervention survey, their perceived usefulness of Edmodo increased following the intervention of the workshop.

**Theme 5: Influence of professional development.**

Instructors predispositions are often linked to the amount of and type of professional support they are exposed to (Hutchison, 2012; Vannatta et al., 2001; Wang et al., 2012a). The professional development offered in this study, designed to support a professional learning community, was closely analyzed to reveal whether this type of professional support influences instructors’ perceptions. As participants were aware of them being observed, they might have provided the kind of feedback that they believed to be expected of them (e.g., the Hawthorne effect). While acknowledging this, the fact that three participants implemented their learning module using Edmodo and four indicated that they plan on using Edmodo in the future by the end of the workshop makes it plausible that the workshop influenced the participants’ perception of Edmodo to some extent.

*Finding 5.1 instructors perceive Edmodo to be useful.*

Instructors’ perceptions of technology influence its integration process (Ertmer, 2005; Ottenbreit-Leftwich et al., 2010). The participants’ positive perceptions reported in this study shows the potential of the professional development resulting in effective integration of Edmodo within the classroom. Relating the benefit of being able to easily share information, learn in any environment, and transition from traditional to fluid instruction that extends beyond the classroom, there was clear disclosure that participants plan to use the platform in the future. Even those who have never used Edmodo for
teaching students at the start of the workshop proposed to regularly use the platform upon completion of the workshop.

Shared information and collaborative learning are more conducive to the needs of digital-age learners (Le Rossignol, 2009). Attributed to the design of the professional development, the participants’ expressed that Edmodo supports a classroom more focused on shared information and collaborative learning. Accordingly, participants’ perceptions have also changed aligning with the foundations of social learning and constructivism, where the instructor takes a more facilitative role than traditional forms of instruction.

The professional development also influenced the confidence of participating instructors. At least one participant reported an increase in confidence regarding the use of Edmodo upon the completion of the workshop; the participant expressed change in her perception on community connection; with the assistance of the professional learning community design the participant now believes she can easily make common associations to others in her field. Likewise, at least one other participant reported an increased, regular use of Edmodo with changed perception on Edmodo - easy to use and provides added value.

Not all perceptions were positive as a negative perception regarding the use of Edmodo in the classroom was also shared. While research highlights a centralized online platform that offers flexibility and convenience as more effective than using various technological tools for different purposes (Colorado & Eberle, 2010), one participant expressed the concern of new technologies being requested to be used for classroom instruction. Relatedly, while the importance of using technology not simply for the
appeal but for the benefits it affords to learning is stressed by researchers (Couran & Goulding, 2012), the participant did not believe Edmodo would be well perceived by students as it does not provide strong social contents. The participant, however, acknowledged that Edmodo can be a useful professional resource by the end of the workshop. Overall, each participant perceived the usefulness of Edmodo to some extent.

**Conclusion 5.1**

Designing and implementing professional development to better influence the intended outcome is critical for its success. Similar to findings citing the benefit of professional learning communities where participants were both students and practitioners (Mackey & Evan, 2011), the professional development workshop of this study impacted the participants’ knowledge and perceptions as they were simultaneously learning *within* Edmodo while learning *how* to use it in practice.

**Application of Findings**

The findings of this study can benefit both instructors seeking to improve instruction and administrators seeking to materialize an effective professional development resource for their teachers. Specific implications for instructors and administrators are provided below.

**Implications for instructors.**

The OSN in this study was perceived to be a valid instructional platform promoting student-centered learning, blended learning, and collaboration. The participants in this study spoke to Edmodo’s potential, disclosing that if used in certain ways, it can promote more natural communication among students, particularly those who possess a more introverted personality. Although the use of OSNs in education is in
its infant stage of investigation, this particular study suggests that instructors who have a
desire to develop more student-centered instruction, increase students confidence to
perform, and employ a blended learning environment may learn from the findings of this
study.

Edmodo, or OSNs with similar features and functionalities, may be used as an
alternative or supplemental to traditional face-to-face forms of learning, as the platform is
positively perceived by instructors as an effective instructional platform. As Edmodo can
provide a space for various learning opportunities to prosper, instructors may utilize
Edmodo to supplement traditional instruction that tends to marginalize student activity
with innovative instruction centered on student preferences. Facilitating instruction
within a platform like Edmodo, where learning can occur spontaneously and naturally,
may promote a student-centric learning environment, which is commonly desired among
today’s learners (Molenda et al., 2013).

Edmodo may also be used to enhance students’ confidence and motivation to
perform. Specifically, students who are more introverted due to their ability (e.g.,
students with learning disability) may benefit from instruction based in Edmodo. As
introverted students are, at times, reluctant to perform and participate in face-to-face
environments (Dewar & Whittington, 2000), Edmodo offers an alternative to instructors
looking to enhance confidence among students with learning disabilities and reticent
personalities. Additionally, Edmodo offers a space where instructors can promote learner
autonomy, providing students with choice and control over their learning. Considering
these factors are both commonly associated with enhancing student motivation (Deci &
Ryan, 1985), instruction aimed to increase student motivation can be enhanced by using the Edmodo platform.

Finally, Edmodo may be used to support a blended learning environment. This can potentially benefit instructors who look to extend learning beyond the classroom, develop a persistent connection between their students and learning, and link students’ everyday digitally-based behavior to education. A blended learning design, however, may not be effective if it is not provided in congruence with well implemented pedagogy. As the need for digital access to information is present among today’s students (Palfrey & Gasser, 2013), instructors can use Edmodo as a gateway for learning, allowing instant access to classroom resources and information at any given moment, and providing students the access to an appropriate device. With the instant access that Edmodo affords and the recognized benefits of face-to-face class time, a blend of online and traditional instruction is recommended (Sharpe & Oliver, 2013). It is, then, suggested that educators continue to explore and develop pedagogy that supports a blended environment in order to provide the most effective learning experience for digital-age learners.

**Implications for administrators.**

Administrators may use the findings to support a professional learning community via OSNs to create a more coherent teaching culture within their district. In doing so, this may contribute to the overall growth of schools in reaching a modern understanding of pedagogy in light of the digital age and offer a more consistent system for professional learning and resource sharing. Throughout the workshop, the participants of this study indicated they benefitted from being learners themselves within the platform and desired to continue doing so in the future. The participants’ actions and shared opinions
additionally revealed that Edmodo is capable of supporting teacher inquiry and reasoning, which can contribute to teacher growth and development. Considering the various outcomes cited in technology-based professional development literature, this study suggests the implications explained below for administrators.

Administrators can use Edmodo to support a professional learning community that promotes collective learning among teachers. Innovative professional development, such as professional learning communities, yield greater benefits when compared to professional development that focuses on individualized and short-sighted goals (Lieberman & Pointer-Mace, 2010). Furthermore, providing a space that allows for a professional learning community to cultivate can influence a collective learning culture, promoting widespread and common idea sharing across a large group of people. As Mitchell (2013) indicated, tools that allow for teachers to work toward a common goal of improving the learning process have influenced school culture and significantly improved the effectiveness of technology-based initiatives across school districts. Administrators can, therefore, benefit from available instructional platforms that have the capability to support professional learning communities.

Administrators can use Edmodo as a platform to influence teacher inquiry and reasoning by establishing a professional learning community. Two equally important techniques, inquiry and reasoning, can contribute to the value of the learning community (Grierson & Woloshyn, 2013; Mitchell, 2013). Utilizing an instructional platform such as Edmodo, where distance is not an issue and users can seamlessly connect, allows for learning to occur through natural inquisition and reasoning that is pertinent to the individual teacher.
Limitations of the Study

While this study provides important implications for the practitioners and administrators, this study is limited in the following perspectives. Readers are cautioned not to generalize the results as this study examined one particular sample and one specific professional development design focusing on an example OSN. As deeper understanding of instructor perceptions was the goal, this study used a qualitative research method and collected data from a small sample of five participants coming from only three different school districts where technology is well fused. Although this choice of school districts was intentional to increase the chances of the instructors being relatively comfortable using technology, the findings might have yielded different results if a more extensive range of school districts/instructors were targeted and studied.

Second, even with the best effort, the professional workshop used for this study may not be a perfect one. The extent to which the workshop had its impact on participants’ perceptions might have been different with a better-designed and implemented workshop.

Third, as the participants of this study were aware of the fact that they were being observed, it is possible that they might have responded in the way that they believed to be desirable by the researcher (e.g., the Hawthorne effect). It is thus possible that participants might have withheld certain opinions and feedback. If the workshop is offered in a real world professional development opportunity, even the same professional workshop with the same participants may not be able to generate the same perceptions.

Fourth, as with the rapidly changing nature of the OSN, it is improbable to assume these same results would occur across other platforms or newer versions of the
platform being studied. When learning from the findings of this study, the readers are thus advised to recognize the potential for a range of outcomes when implementing a similar or identical instructional platform.

Fifth, the instructors examined in this study, limited in both size and diversity, were from affluent districts with high technology presence. Considering these criteria, the reader should be aware of the fact that technology use is impacting student learning while at the same time a socio-economic performance gap is still apparent (Warschauer & Matuchniak, 2010). The results of this study provides only one depiction of a group of instructors who are socio-economically advantaged and therefore the results may not be over generalized, especially in areas of low socio-economic status. Finally, for the task of implementing their own lesson within Edmodo, the participants in this study had limited time at the end of the academic year, which for most school districts brings highly demanding state-wide testing requirements. As time allotted for technology-based professional development influences its effectiveness, the findings might have yielded different results if the workshop had been offered during a different time of the academic year.

Overall, while the results do provide valuable information for instructors and administrators seeking a platform that supports innovative, student-centered instruction for both k-12 and professional learning, the reader is cautioned that the generalization from the findings may not be possible considering the specific and selective nature of the sample, a small size sample, and the unique design of the professional development.
Suggestions for Future Research

Notably, just because instructors perceive an instructional strategy to result in an intended outcome does not necessarily indicate that the students’ perspectives will align (Oliver & Trigwell, 2005). Future research should focus on the k-12 students’ perspectives in conjunction with the instructors’ perspectives. Additionally, future research may benefit from studying the parents’ perceptions, as they can influence students’ technology use at home (An & Reigeluth, 2011; Portier, Peterson, Capitao-Tavares, & Rambaran, 2013, Yu, Yuen, & Park, 2013). Studies that compare the instructor perspectives with the students’ perspectives of the instruction, and understand the effect parents have on student technology use would extend the current study to further the understanding of the overall effectiveness of Edmodo as an instructional platform. As this study was one case focusing on one set of teachers, it is recommended for future research to involve a larger sample of instructors, preferably from diverse school settings. The results of this study could further be supported, or contradicted, if the online workshop were incorporated into a district-, state-, or nation-wide professional development initiative. This would ensure teachers allocate time to participate in the professional development and thus reveal a wider range of perspectives to more deeply understand how the OSN is perceived as an instructional platform. Given that time was a barrier to implementation, allotting teachers’ time to complete the workshop would also be beneficial for the success of future studies.

The way in which pedagogical practice could change to align with the needs of digital-age learners was not a central focus of this study. It is, however, recommended for future research to seek to further develop pedagogy that supports blended learning
and digital-age learning practices, as it is common that technology is used for its appeal rather than to improve student learning in education. The misconstrued view that knowing how to use a technology is sufficient enough to effectively implement technology into curriculum is foretelling of a gap in research. Further investigation into understanding and developing specific pedagogy and a teaching culture that is centered around the student via the support of technology may be forthcoming to the overall shift from simply *how to use* a technology to *how to effectively integrate* technology to enhance the teaching and learning process.

**Summary**

In view of today’s students, who were born into a world of high-technology and inherently use computerized systems to access information and communicate, it is critical that practitioners of education are capable of connecting their students’ digital world with learning, through effective instructional platforms that enhance digital-age students’ learning. The final chapter outlined the steps that were taken to conduct this study, the findings in light of relevant literature, and suggestions for applying the findings for both instructors and administrators.

This study found similar results to the literature that advocates OSNs in education and professional development. The findings extended the research on OSNs in education to take account of instructors’ perceptions of an OSN as an instructional platform and OSN’s capability to support a professional learning community. More specifically, the study results revealed that instructors positively perceive Edmodo as an instructional platform, particularly to facilitate instruction that centers on the student and promotes
anytime, anywhere learning. It was also clear that Edmodo is capable of supporting a professional learning community.

While generalization from the study findings is cautioned, administrators and instructors may reference the study findings when looking for an intervention that supports a professional learning community or implementing instruction within a technology-augmented learning platform (e.g., common culture among instructors seeking to improve instructional practice and meet the needs of digital-age learners). Suggestions for future research include studying the students in conjunction with the instructors, examining a larger sample of teachers who are from diverse background with extended time to complete the workshop, and developing pedagogical practices that further support the 21st century teaching and learning process.
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Appendix A: Survey and Interview Questions

A1 Participant Demographics and Background

Enter your 3-digit identifiable code below (this will be provided by the researcher in order to measure the changes among the participants)

What is your gender?
- Male
- Female

What is your age group?
- 21 to 30
- 31 to 40
- 41 to 50
- Over 50

How long have you been teaching?
- Less than 5 years
- 5-9 years
- 10-15 years
- 16-20 years
- More than 20 years

What is your subject-area discipline?
- Math
- English/Language Arts
- Science
- Physical Education/Health
- Social Studies
- Library/Media
- Fine Arts
- Administration
- World Languages
- Elementary (multiple subjects)
- Other

How many professional development courses on OSNs have you taken in the past month, excluding this one?
- 0
- 1-2
- 3 or more

How many professional development courses on OSNs have you taken in the past year, excluding this one?
• 0
• 1-2
• 3 or more

How many professional development courses on technology have you taken in the past year, *excluding this one*?
• 0
• 1-2
• 3 or more

How often do you use a classroom computer for personal use?
• Daily
• Weekly
• Monthly
• Rarely
• Never

How often do you use a classroom computer for teaching students?
• Daily
• Weekly
• Monthly
• Rarely
• Never

What do you use the computer for (check all that apply)?
• Planning
• Grading
• Contacting Parents
• Classroom Teaching
• Communicating with Colleagues/Administration
• Other

How often do you use OSNs for personal use?
• Daily
• Weekly
• Monthly
• Rarely
• Never

How often do you use OSNs for teaching students?
• Daily
• Weekly
• Monthly
• Rarely
• Never

What OSNs do you personally use? Check all that apply:
• Twitter
• Facebook
• Edmodo
• LinkedIn
• Google+
• I do not use OSNs
• Other

What OSNs do you use to teach students? Check all that apply:
• Twitter
• Facebook
• Edmodo
• LinkedIn
• Google+
• I do not use OSNs
• Other
A2 Technology Acceptance Model

Using the scale below, please indicate the extent you agree or disagree with the following statements:

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<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Slightly</td>
<td>Agree</td>
<td>Slightly</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>Disagree</td>
<td>Agree</td>
<td>Agree</td>
<td>Agree</td>
<td></td>
</tr>
</tbody>
</table>

*Perceived Usefulness*
1. Using online social networks could improve my teaching performance.
2. Using online social networks could enhance my teaching effectiveness.
3. I find online social networks to be useful to me in my teaching.

*Perceived Ease of Use*
1. Learning to operate online social networks is/was easy for me.
2. It is/was easy for me to become skillful at using online social networks.
3. I find online social networks easy to use.
A3 Online Learning Value and Self-Efficacy Scale

Using the scale below, please indicate the extent you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Slightly Agree</td>
<td>Slightly Agree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Task Value**

1. It is/was personally important for me to perform well in this workshop.
2. I am/was very interested in the content of this workshop.
3. This workshop will provide/provided a great deal of practical information.
4. Completing this workshop will move/moved me closer to attaining my career goals.
5. It is/was important for me to learn the material in this workshop.
6. The knowledge I will gain/gained by taking this workshop can be applied in many different situations.

**Self-Efficacy for Learning with Self-Paced, Online Training**

1. Even in the face of technical difficulties, I am certain I can learn the material presented in an online course.
2. I am confident I can learn without the presence of an instructor to assist me.
3. I am confident I can do an outstanding job on the activities in a self-paced, online course.
4. I am certain I can understand the most difficult material presented in a self-paced, online course.
5. Even with distractions, I am confident I can learn material presented online.
A4 Dichotomous OSN Usage Questions

The following questions are concerning your individual OSN use OUTSIDE of the workshop.
Please respond Yes or No to the following questions:
- I use at least one online social network every day.
- I frequently check online social network(s) (e.g., multiple times a day).
- I use more than one online social network on a regular basis.
- I am able to use online social networks well.
- I use online social networks for teaching.
- I use online social networks for professional learning.
A5 Semi-structured Interview Questions

1. Tell me about your experience with using Edmodo.
2. Tell me how your perceptions of Edmodo, and online social networks in general, have changed since you have completed the workshop.
3. Describe your comfort level with using Edmodo for teaching and learning.
   - Has this changed since you have completed the workshop? How?
4. Tell me about Edmodo’s navigation features.
5. Did you believe it was easy to navigate Edmodo prior to the workshop?
6. Do you find Edmodo’s navigation features easy to use now that you have completed the workshop? Why, or why not?
7. In general, tell me what you think Edmodo should be used for.
8. Tell me your thoughts on the various functions in Edmodo.
9. Do you find Edmodo as a useful tool for learning? Why or why not?
10. What were your beliefs on Edmodo as a tool for learning prior to the workshop?
11. What are the advantages of using Edmodo for learning? What are disadvantages?
12. Do you think Edmodo adds value to the learning process? Why, or why not?
13. Do you think Edmodo can enhance collaboration in the classroom? Why, or why not?
14. Do you think Edmodo can enhance communication in the classroom? Why, or why not?
15. What are the benefits of using Edmodo for teaching? What are the disadvantages?
16. What were your beliefs on Edmodo as a tool for teaching prior to the workshop?
17. Do you find Edmodo as a useful tool for teaching now? Why or why not?
18. What features of this particular professional development were the most effective?
19. What features of this particular professional development could be improved?
20. Tell me your thoughts on online professional learning communities.
   - Do you believe this workshop supported a professional learning community? Why or why not?
   - Do you believe you will continue to use Edmodo as a professional learning community? Why or why not?
21. Tell me about your experience with discussing and interacting within the workshop.
   - Did this support you in learning about Edmodo?
   - Did this support you in developing professional skills?
   - Did this support you in advancing your knowledge of using Edmodo for instructional purposes?
22. How do you feel about self-paced professional development?
23. How do you feel about online professional development?
24. Did you feel confident that you could navigate through the workshop and complete the tasks of the workshop?
25. Did you find personal relevance in the tasks of the workshop?
   - If so, what aspects helped you to find personal relevance?
   - If not, why not?
26. Did you find the workshop materials valuable?
   - If so, which ones were most useful?
   - If not, are there any types of materials that you think would have improved the course?
27. Any other suggestions/comments regarding the way the workshop was structured?
28. How would you describe your overall experience with the workshop?
29. Please describe your experience with implementing your learning module.
30. Did you develop the learning module fully to the point that you could implement the module in your classroom?
31. Did you implement your learning module that you developed?
   o If so, please elaborate on your experience with implementation.
   o If not, why not?
32. Tell me how you think Edmodo benefits your students’ learning.
33. Tell me how your students reacted to using Edmodo.
34. Did your students react differently to using Edmodo than they did to other technologies that you have used? If so, how?
35. Tell me how you foresee yourself using Edmodo in the future.
36. Do you foresee yourself using Edmodo as an instructional platform in the future?
   o If so, please elaborate.
   o If not, why not?
37. Do you foresee yourself using Edmodo for your own professional learning in the future?
   o If so, please elaborate.
   o If not, why not?
38. Do you see any potential barriers for using OSNs in your district in the future?
Appendix B: Session One Materials

B1 Text-based Tutorial Example

Edmodo – Creating a Group

Creating a Large Group


Step 2: Once you are signed into Edmodo, click on the plus sign (+) in the “Groups” box.
Adding Items to the Library

On your Edmodo homepage, select the Library tab.

Select Library Items.

Click the Add to Library button.

Either upload a file or type in the link you want to add to the library.
Appendix C: Session Two Materials

C1 ISTE Technology Standards for Students

1. Creativity and innovation
   Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
   a. Apply existing knowledge to generate new ideas, products, or processes
   b. Create original works as a means of personal or group expression
   c. Use models and simulations to explore complex systems and issues
   d. Identify trends and forecast possibilities

2. Communication and collaboration
   Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
   a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
   b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats
   c. Develop cultural understanding and global awareness by engaging with learners of other cultures
   d. Contribute to project teams to produce original works or solve problems

3. Research and information fluency
   Students apply digital tools to gather, evaluate, and use information.
   a. Plan strategies to guide inquiry
   b. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
   c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
   d. Process data and report results

4. Critical thinking, problem solving, and decision making
   Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
   a. Identify and define authentic problems and significant questions for investigation
   b. Plan and manage activities to develop a solution or complete a project
   c. Collect and analyze data to identify solutions and/or make informed decisions
   d. Use multiple processes and diverse perspectives to explore alternative solutions
5. Digital citizenship
Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
   a. Advocate and practice safe, legal, and responsible use of information and technology
   b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
   c. Demonstrate personal responsibility for lifelong learning
   d. Exhibit leadership for digital citizenship

6. Technology operations and concepts
Students demonstrate a sound understanding of technology concepts, systems, and operations.
   a. Understand and use technology systems
   b. Select and use applications effectively and productively
   c. Troubleshoot systems and applications
   d. Transfer current knowledge to learning of new technologies

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C2 Bloom’s Taxonomy Reinvented

*Bloom’s Taxonomy*

In 1956, Benjamin Bloom headed a group of educational psychologists who developed a classification of levels of intellectual behavior important in learning. During the 1990s a new group of cognitive psychologists, led by Lorin Anderson (a former student of Bloom), updated the taxonomy to reflect relevance to 21st century work. The two graphics show the revised and original Taxonomy. Note the change from nouns to verbs associated with each level.

*Source:* [http://ww2.odu.edu/educ/roverbau/Bloom/blooms_taxonomy.htm](http://ww2.odu.edu/educ/roverbau/Bloom/blooms_taxonomy.htm)
C3 Implementing Technology Standards

*Source: http://nets-implementation.iste.wikispaces.net/home*
C4 7 Ways to use Edmodo in the Classroom

We asked, you answered! 15 more brilliant ways to use Edmodo

Posted by: Edmodo

November 23rd, 2010 | 36 Comments | Facebook Like 2 | Twitter Tweet 4 | Google+ 9 | Pin It

To say we were overwhelmed with the response to last week's "7 Brilliant Ways to Use Edmodo" blog post would be a huge understatement. Soon after we posted it, ideas and suggestions were flying in from every direction! It's clear that educators are passionate about using Edmodo in the classroom and we love your creativity in finding new ways to engage students. Check out some of the innovative ways your peers are using Edmodo in the classroom – if you like the idea, connect with them on Edmodo to learn more:

1. Cultural Exchange: My Students created groups to study different aspects of Greek culture. Students can focus on one aspect and then teach all the other students about it. – submitted by Preeyam Roy.

2. National Book Club: My class and about 7 other classes around the country are using Edmodo as an online book club...discussing the same book that we all read to our classes every day! ?? To learn more, send an Edmodo Connection Request to Ben Curran.

3. Teacher for a Day: My school uses Edmodo to communicate classroom assignments and info for the whole student body. We also use it to make groups and have the students teach each other certain curriculum. ?? submitted by Rohan Hiatt.

4. Mini-Math and Mapping Lessons: I use Edmodo as a way for my students in my computer class to find their daily lesson. One of the lessons my students just did was to use Google Maps to find the driving directions from their home to Fort Wilderness Lodge. They have to go to Walt Disney World's website and look up the lodge. They then have to find the lodge's address and put that into the driving directions in Google Maps. They have to post in Edmodo the directions and the distance the trip is including how much time it would take to make the trip driving. They then have to post how much a 5 night stay in the lodge would be. As an extension, the students also have to upload pictures of the lodge and WDW parks. You could also have them post the ticket prices for entrance into the park. ?? To learn more, send an Edmodo Connection Request to Greg Limperis.
5. Tutor Connection: I am the director of the learning Center at my school. I use Edmodo to help tutors connect with teachers and myself as well as the students they work with. This is a great way for everyone to stay on the same page. Now when a teacher wants a tutor to know that the student has a test or needs to share other information. It can be done without waiting. We love it! ??To learn more, send an Edmodo Connection Request to Tracie Belt.

6. Reading Critique: I have the children upload their fluency files (audio clips of themselves reading) and have children comment on what they noticed the child doing well. –submitted by TeamBond

7. Mentor Sharing: I created a group for all the intern mentors from Southeast Michigan to share ideas, get advice, and share files. –submitted by TeamBond

8. Punctuation and Grammar: My third graders are still, unfortunately, developing the skill of always capitalizing and punctuating. So I take time to show the poses and go in and edit them with the class. It is a great way to do D.O.L. with practical material!! –submitted by TeamBond

9. Teacher Lounge: I set up a “Teacher Lounge” (a comfy sounding staff room) for our school, where we can share ideas, files and links that would seem like spamming if we sent it via email to “all teachers” on staff. Much like your Playground idea for the kids, it has created a casual environment where ideas can freely flow, be discussed and easily browsed. ?? To learn more, send an Edmodo Connection Request to Ron Francis.

10. Professional Learning Communities: I am an elementary school principal using Edmodo as a tool for my school grade level Professional Learning Communities. Each group meets once every three weeks and uses Edmodo to post their minutes of the meeting and then any follow up or discussion that occurs between meetings. I also use it to post to the entire staff important documents such as blank field trip permission forms and such that all staff need access to. By posting them in Edmodo they remain in all libraries and are accessible by all staff. It has been a very useful tool for my school Professional Learning Communities. To learn more, send an Edmodo Connection Request to Shawn Dupont.

11. French Language Practice: I have my students practice French phrases on Edmodo and writing using the accents on the keyboards. I can then reply immediately to their French, give them feedback immediately, and make any corrections. All in seconds. So much easier than picking up paper, correcting, then passing back. ??To learn more, send an Edmodo Connection Request to French Donovan.

12. TV Show Live Blog. Have the students “homework” be to watch a specific show (PBS, News, Weather Channel, etc) and have them send notifications on interesting parts of the show in real time to their fellow classmates. Start class discussions while students are in the comfort of their own home and get them thinking about what their learning from the broadcast and how it can connect in school. Then talk about it in class the next day (I know sometimes some students won’t have TV’s but you could offer it as extra credit, just an idea) To learn more, send an Edmodo Connection Request to Parker Johnson.

13. Activity Tracking: Much the same way you talked about Data Tracking Diary I could see this used in Physical Education. Have students assigned a pedometer and have them enter daily step totals. Set goals for the students or groups to reach week to week (Could have pedometer costs but could work with PE teacher, or even incorporate math by having them find averages, daily overall step totals, etc.) Competition can even be set between the groups to see who can get the highest total (integrating Physical Activity in ANYTHING these days in my eyes is a great way for the mind to wake up and be ready to learn!) To learn more, send an Edmodo Connection Request to Parker Johnson.
14. **Flat Stanley on Holiday**: I know that in the past teachers have talked about students being sad they can’t “Edmodo” over the summer just because really there is no need with students out. Well keep the learning going by posting a “Flat Stanley” project for the summer. (Even though it may not consist of a grade it’s a great way to keep the students learning) Towards the end of the year have students create a Flat Stanley (small paper figure, they create and decorate) and have them take it around to different places over the summer and share their experiences with other students. Have the students have a template with questions like where did you go, what did you learn, what was the most exciting part, etc. This can help students learn about different parts of the country (or world) based on their classmates travels. This allows them to stay in the loop with other students as well as facilitate learning over summer “brain breaks”. This can be done in the summer, or even over breaks! To learn more, send an Edmodo Connection Request to Parker Johnson.

15. **Safe Facebook**: My class uses Edmodo as a ‘safe’ Facebook. The kids like the no drama zone, and the fact that they can send a message to me or the group and get an answer about just about anything. We have used it for current events assignments, summaries but my favorite is the poll. To learn more, send an Edmodo Connection Request to Patricia Hillyer.

Keep your ideas coming — we’d love to hear more!

Appendix D: Session Three Materials

D1 Discussion Rubric

Sample #3 Grading Discussion Boards

<table>
<thead>
<tr>
<th>Criteria</th>
<th>A (90-100) Outstanding</th>
<th>B (80-90) Proficient</th>
<th>C (70-79) Basic</th>
<th>D/F (0-69) Below Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking</td>
<td>rich in content, full of thought, insight, and analysis</td>
<td>substantial information, thought, insight, and analysis has taken place</td>
<td>generally competent information is thin and commonplace</td>
<td>rudimentary and superficial, no analysis or insight is displayed</td>
</tr>
<tr>
<td>Connections</td>
<td>clear connections to previous or current, real-life situations</td>
<td>new ideas or connections lack depth and/or detail</td>
<td>limited, if any connections vague generalities</td>
<td>no connections are made off topic</td>
</tr>
<tr>
<td>Uniqueness</td>
<td>new ideas, new connections made with depth and detail</td>
<td>new ideas of connections, lack depth and/or detail</td>
<td>few, if any new ideas or connections, rehash or summarize other postings</td>
<td>no new ideas, &quot;I agree with...&quot; statement</td>
</tr>
<tr>
<td>Timeliness</td>
<td>all required postings, early in discussion</td>
<td>all required postings, some not in time for others to read and respond</td>
<td>all required postings, most at the last minute without allowing for response time</td>
<td>some, or all, required postings missing</td>
</tr>
<tr>
<td>Stylistics</td>
<td>few grammatical or stylistic errors</td>
<td>several grammatical or stylistic errors</td>
<td>obvious grammatical or stylistic errors, errors interfere with content</td>
<td>obvious grammatical or stylistic errors, makes understanding impossible</td>
</tr>
</tbody>
</table>

Visit some of the resources below for more information and samples on rubrics:

Rubric Builder at http://landmark-project.com/classweb/tools/rubric_builder.php?
## D2 Posting Rubric

### Edmodo Posting Rubric & Expectations

For the next 4 weeks we will be reading dystopian novels.

**Minimum expectations for number/frequency of posts per week:**
- write at least 1 open-ended discussion question
- respond to at least 2 open-ended questions written by others
- post an additional three times in response to other people’s postings

You are encouraged to ask as many clarifying questions as you wish, but there are no specific requirements.

The rubric below will be used to assess your overall postings each week. Be sure you follow the guidelines.

<table>
<thead>
<tr>
<th>Quality</th>
<th>Exceeds</th>
<th>Meets</th>
<th>Developing</th>
<th>Does Not Meet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Appropriate comments; thoughtful, reflective, and respectful of others’ postings.</td>
<td>Appropriate comments and responds respectfully to others’ comments</td>
<td>Responds, but with minimum effort, (i.e. “I agree with Bob”). Posting does not display contemplation.</td>
<td>Posting does not respond to the question or classmate’s posting. Response is irrelevant or off topic.</td>
</tr>
<tr>
<td>Reference and Support</td>
<td>Consistently uses direct references to readings to support discussion.</td>
<td>Incorporates some references from the text, but may not be consistent.</td>
<td>Discusses references from text in a general way, but does use specific references.</td>
<td>Includes no references or supporting evidence.</td>
</tr>
<tr>
<td>Contribution</td>
<td>Furthers discussion with questions or statements that encourage response. Participates beyond the required postings.</td>
<td>Participates, but does not post anything that encourages others to respond. Participates with the required number of postings.</td>
<td>Posting does not answer all of the question or responses provided are incomplete.</td>
<td>Posting is less than 50% of the required, or posting does not further any discussions.</td>
</tr>
<tr>
<td>Grammar &amp; Mechanics</td>
<td>Responses contain no errors in spelling, grammar &amp; mechanics. Answers are in complete sentences.</td>
<td>Responses may contain one or two errors in spelling, grammar &amp; mechanics. Errors do not impede reader’s understanding. Answers are in complete sentences.</td>
<td>Response may contain several errors in spelling, grammar &amp; mechanics. Errors may impede reader’s understanding. Answers may not be in complete sentences.</td>
<td>Response may contain significant errors in spelling, grammar &amp; mechanics. Errors may cause the answer to be largely inconherent. Answers are not in complete sentences.</td>
</tr>
</tbody>
</table>
# D3 Math Blog Rubric

<table>
<thead>
<tr>
<th>Math Blog Rubric (Classic Exemplars Rubric + Blog Requirements)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Criteria</strong></td>
</tr>
<tr>
<td><strong>Problem-Solving Strategies</strong></td>
</tr>
<tr>
<td><strong>Problem-Solving Reasoning</strong></td>
</tr>
<tr>
<td><strong>Problem-Solving Solution</strong></td>
</tr>
<tr>
<td><strong>Mathematical Understanding</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Mathematical Communication</strong></td>
</tr>
<tr>
<td><strong>Clarity of Explanation</strong></td>
</tr>
<tr>
<td><strong>Mathematical Communication Representation (if appropriate required)</strong></td>
</tr>
<tr>
<td><strong>Mathematical Communication Terminology</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Writing Conventions</strong></td>
</tr>
<tr>
<td><strong>Commenting</strong></td>
</tr>
<tr>
<td><strong>Final Grade Comments</strong></td>
</tr>
</tbody>
</table>
## D4 Summarization Rubric

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>Excellent</th>
<th>Good</th>
<th>Needs Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Focus or topic of selection is clearly expressed.</td>
<td>Focus or topic of selection is somewhat clear.</td>
<td>There is no focus.</td>
</tr>
<tr>
<td>Supporting Detail</td>
<td>Summary contains many relevant details and does not include irrelevant details.</td>
<td>Summary contains some relevant details and several irrelevant details.</td>
<td>Summary consists basically of irrelevant details.</td>
</tr>
<tr>
<td>Own words</td>
<td>The summary uses the student's own words and does not copy from the selection.</td>
<td>The summary consists of phrases and segments of the selection strung together with a few of the student's own words.</td>
<td>Most of the summary is copied.</td>
</tr>
<tr>
<td>Condensation</td>
<td>It is evident that the student has condensed the material by deleting, integrating and generalizing.</td>
<td>The student condensed the material by deleting and integrating.</td>
<td>The student only used deletion to condense the material.</td>
</tr>
<tr>
<td>Organization</td>
<td>Sentences follow in a logical pattern and contain effective transitions.</td>
<td>Sentences are logical, but have poorly defined transitions.</td>
<td>Sentences are out of logical order and contain no transitions.</td>
</tr>
<tr>
<td>Sentence Structure</td>
<td>Sentences are well-constructed with varied structure.</td>
<td>Sentences are correct; however, the summary lacks variety.</td>
<td>There are several sentence errors (run-ons, fragments).</td>
</tr>
</tbody>
</table>
### Appendix E: Pre-validated Instruments and Construct Definitions

*Table E1*

Technology Acceptance Model: Factors*

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived Usefulness</strong></td>
<td>PU1. Using online technology could improve my teaching performance.</td>
<td>0.936</td>
</tr>
<tr>
<td></td>
<td>PU2. Using online technology could enhance my teaching effectiveness.</td>
<td>0.958</td>
</tr>
<tr>
<td></td>
<td>PU3. I find the online technology to be useful to me in my teaching.</td>
<td>0.849</td>
</tr>
<tr>
<td><strong>Perceived Ease of Use</strong></td>
<td>PEOU1. Learning to operate online technology is/was easy for me.</td>
<td>0.906</td>
</tr>
<tr>
<td></td>
<td>PEOU2. It is/was easy for me to become skillful at using online technology.</td>
<td>0.935</td>
</tr>
<tr>
<td></td>
<td>PEOU3. I find online technology easy to use.</td>
<td>0.803</td>
</tr>
</tbody>
</table>

Table E2

Online Learning Value and Self-Efficacy Scale Factors*

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task Value (TV)</strong></td>
<td>▪ It was personally important for me to perform well in this course.</td>
</tr>
<tr>
<td></td>
<td>▪ I was very interested in the content of this course.</td>
</tr>
<tr>
<td></td>
<td>▪ This course provided a great deal of practical information.</td>
</tr>
<tr>
<td></td>
<td>▪ Completing this course moved me closer to attaining my career goals.</td>
</tr>
<tr>
<td></td>
<td>▪ It was important for me to learn the material in this course.</td>
</tr>
<tr>
<td></td>
<td>▪ The knowledge I gained by taking this course can be applied in many different situations.</td>
</tr>
<tr>
<td><strong>Self-Efficacy for Learning with Self-Paced, Online Training (SE)</strong></td>
<td>▪ Even in the face of technical difficulties, I am certain I can learn the material presented in an online course.</td>
</tr>
<tr>
<td></td>
<td>▪ I am confident I can learn without the presence of an instructor to assist me.</td>
</tr>
<tr>
<td></td>
<td>▪ I am confident I can do an outstanding job on the activities in a self-paced, online course.</td>
</tr>
<tr>
<td></td>
<td>▪ I am certain I can understand the most difficult material presented in a self-paced, online course.</td>
</tr>
<tr>
<td></td>
<td>▪ Even with distractions, I am confident I can learn material presented online.</td>
</tr>
</tbody>
</table>

**Table E3**

Technology Acceptance Model Definitions*

<table>
<thead>
<tr>
<th>Construct Category</th>
<th>Conceptual Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Usefulness</td>
<td>The extent to which a teacher believes that using online technology would enhance his or her teaching performance (Davis, 1989)</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>The extent to which a teacher believes that using online technology would be free of effort (Davis, 1989)</td>
</tr>
</tbody>
</table>

Table E4
Online Learning Value and Self-Efficacy Scale Constructs*

<table>
<thead>
<tr>
<th>Construct Category</th>
<th>Conceptual Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Attainment Value/ Importance</td>
<td>Attainment value (or, more simply, importance) is defined as the importance of doing well on a task in terms of one’s self-schema and core personal values.</td>
</tr>
<tr>
<td>II. Intrinsic Interest Value</td>
<td>Intrinsic interest value is defined as the inherent enjoyment or pleasure one gets from engaging in an activity, or simply a person’s subjective interest in the content of a task.</td>
</tr>
<tr>
<td>III. Extrinsic Utility Value</td>
<td>Extrinsic utility value is defined as the usefulness of a task in terms of one’s short- and long-term goals, including academic and career goals.</td>
</tr>
<tr>
<td>IV. Self-efficacy for Learning with Self-Paced, Online Training</td>
<td>Self-Efficacy for Learning with Self-Paced, Online Training is defined as an individual’s confidence in his or her ability to successfully learn the material presented in a self-paced, online learning format.</td>
</tr>
</tbody>
</table>

Appendix F: Questions for Implementation

F1 Participant Profile Questions

What is your gender?
- Male
- Female

What is your age group?
- 21 to 30
- 31 to 40
- 41 to 50
- Over 50

How long have you been teaching?
- Less than 5 years
- 5-9 years
- 10-15 years
- 16-20 years
- More than 20 years

What is your subject-area discipline?
- Math
- English/Language Arts
- Science
- Physical Education/Health
- Social Studies
- Library/Media
- Fine Arts
- Administration
- Elementary (multiple subjects)
- Others

How many online professional development courses have you taken in the past 3 years?
- 1-2
- 3-4
- 5-6
- 7-8
- More than 8

How often do you use online social networks for classroom use?
- Daily
- Weekly
- Monthly
- Rarely
- Never

What online social networks do you personally use? Check all that apply:
- Twitter
- Facebook
• EdMedia
• LinkedIn
• Google+
• Other

How often do you use online social networks for personal use per week?
   a. Never
   b. Occasionally
   c. Every day
   d. Constantly

I believe social networks enhance communication among faculty, students, and the community.
   1. Strongly Disagree
   2. Disagree
   3. Neither agree nor disagree
   4. Agree
   5. Strongly-agree

I use social networks to facilitate learning beyond the classroom.
   1. Strongly Disagree
   2. Disagree
   3. Neither agree nor disagree
   4. Agree
   5. Strongly-agree

I use social networks to learn professionally.
   1. Strongly Disagree
   2. Disagree
   3. Neither agree nor disagree
   4. Agree
   5. Strongly Agree

I utilize social software to share classroom work and happenings with parents.
   1. Strongly Disagree
   2. Disagree
   3. Neither agree nor disagree
   4. Agree
   5. Strongly Agree
F2 Technology Acceptance Model

Using the scale below, please indicate the extent you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Slightly disagree</td>
<td>Slightly agree</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

*Perceived Usefulness*

1. Using online social networks could improve my teaching performance.
2. Using online social networks could enhance my teaching effectiveness.
3. I find online social networks to be useful to me in my teaching.

*Perceived Ease of Use*

4. Learning to operate online social networks is/was easy for me.
5. It is/was easy for me to become skillful at using online social networks.
6. I find online social networks easy to use.
F3 Online Learning Value and Self-Efficacy Scale

Using the scale below, please indicate the extent you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Slightly disagree</td>
<td>Slightly agree</td>
<td>Agree</td>
<td>Strongly agree</td>
<td></td>
</tr>
</tbody>
</table>

**Task Value**

1. It was personally important for me to perform well in this workshop.
2. I was very interested in the content of this workshop.
3. This workshop provided a great deal of practical information.
4. Completing this workshop moved me closer to attaining my career goals.
5. It was important for me to learn the material in this workshop.
6. The knowledge I gained by taking this workshop can be applied in many different situations.

**Self-Efficacy for Learning with Self-Paced, Online Training**

1. Even in the face of technical difficulties, I am certain I can learn the material presented in an online course.
2. I am confident I can learn without the presence of an instructor to assist me.
3. I am confident I can do an outstanding job on the activities in a self-paced, online course.
4. I am certain I can understand the most difficult material presented in a self-paced, online course.
5. Even with distractions, I am confident I can learn material presented online.
Appendix G: Protocol Forms

G1 Subject Recruitment Message

Ashley Hodge, Doctoral Student in Instructional Technology in the School of Education at Duquesne University, asks for your participation in her dissertation study titled, *The Effects of a Professional Learning Community on Instructors’ Perceptions of Online Social Networks as Instructional Platforms*. This study intends to investigate whether the nature of participants’ perceptions of OSNs as instructional platforms are fixed or if the intervention of the online workshop will prove their perceptions can change for the better once the participants are more ready to use OSNs and more positively perceive them as an instructional platform. Furthermore, it is intended to study whether participants’ use of OSNs outside of the workshop influences their perceptions of OSNs as instructional platforms. Finally, this study will examine the participants’ perceived self-efficacy of self-paced learning within an OSN as the instructional platform and whether this changes following the intervention of the workshop.

With the intention of understanding participants’ perceptions of OSNs for teaching and learning, this study will focus on the design, delivery, and outcomes of an online professional development workshop for implementing and assessing Edmodo to measure whether it is effective in changing participants’ perceptions of OSNs as instructional platforms. Any instructor of a K-12 grade level is eligible to participate in this study with the exception of those who have already completed this workshop. The participants will be asked to complete a pre-intervention survey, a five-part online workshop, and a post-intervention survey. Additionally the participants will be asked to implement a learning module, developed throughout the five sessions, within an allotted two-week time period. No information from their individual implementation will be used in the research as the investigators will not have access to their learning module page; the information on that page will be at the discretion of the instructor. The investigator also asks for permission to document the interaction and involvement of the participants (e.g., reflective comments and discussion board postings) within the online workshop. The five sessions will consist of 1-2 hours of task completion and online discussion per week and are to be completed over the period of 5 weeks; an additional two weeks will be allocated for implementation of a learning module. Participation is strictly voluntary and participants may withdraw at any point and time with no penalty. All identifiable characteristics will be kept private and information gathered throughout the workshop will be used solely for the purpose of research.

If interested, please select the following link, [EdmodoConsent](#), to review the informed consent document. If you have any questions or concerns regarding the proposed research please contact Ashley Hodge by way of phone, 724-992-0460 or email, [hodgea@duq.edu](mailto:hodgea@duq.edu) for further assistance.
G2 Participant Consent Form

Consent to Participate in a Research Study

TITLE: The Effects of a Professional Learning Community on Instructors’ Perceptions of Online Social Networks as Instructional Platforms

PRINCIPAL INVESTIGATOR: Ashley Hodge
Doctoral Student
Duquesne University
600 Forbes Ave.
Pittsburgh, PA 15282
(724) 992-0460

CO-INVESTIGATOR: Misook Heo, Ph.D.
Associate Professor
Duquesne University
heom@duq.edu
412-396-1662

PURPOSE: Your participation is requested in a dissertation study that intends to investigate whether your perceptions of Online Social Networks (OSNs) as instructional platforms change after participating in an online workshop. Further, the study will also examine whether your use of OSNs outside of the workshop influences your perceptions of OSNs. Finally, this study will examine your perceived self-efficacy of self-paced learning within an OSN as the instructional platform and whether your perceived self-efficacy changes following the participation in the online workshop.

You are being asked to 1) respond to an online pre-intervention survey and set up an account in an OSN, Edmodo, which will take approximately 20 minutes, 2) complete a series of five online self-paced sessions, consisting of 1-2 hours of task completion and discussion per week over a five week period, 3) use a learning module, which you will create during the workshop, in your classroom within two weeks after the fifth workshop session, and 4) answer an online post-intervention survey (upon completion of the online workshop). You are
also asked to grant the principal investigator permission to observe and document your interactions within the five-week workshop (e.g., reflections, contributions to discussion and tasks, feedback). These requests are the only requirements for this study.

This study has been approved by Duquesne University Institutional Review Board.

**RISKS AND BENEFITS:**

Your interactions within the online workshop will be housed in the private workshop group. Your identity will be protected as much as possible in an online group setting. The data (survey responses and online activity/feedback) will be used solely for research purposes and no identifiable characteristics will be disclosed. You are, however, responsible for your privacy settings of your workshop account. Any information you choose to disclose from your account is beyond the control of the investigators.

If you decide to participate, it may be beneficial to your professional growth to learn how to use an online social network as an instructional platform. In addition, completing this workshop may have a long-term effect on your ability to foster interaction among your students and engage them in learning.

**COMPENSATION:**

No compensation will be awarded for your participation; however, there is also no cost to participate in the study.

**CONFIDENTIALITY:**

Your personal information will not be used in the analysis of the collected data. Your names will be revealed within the online workshop but will not be used in any of the recorded observations. You will be assigned an ID number for the purposes of analyzing the findings. At the time of the online surveys, the only identifiable information you will be required to enter is your assigned ID number, which only the principal investigator will have access to. Your IP address will not be recorded and your responses will only appear in statistical data summaries. Your responses will be downloaded to the principal investigator’s password protected computer for
analysis and will be securely maintained for a minimum of five years.

**RIGHT TO WITHDRAW:** You are not obligated to participate in this study and have the freedom to withdraw from participation at any point and time. There will be no penalties for withdrawing and any responses made by you prior to withdrawal will not be used in this study. This research is independent of your job and therefore, whether you choose to participate or withdraw from the study will not be known to your administrators.

**SUMMARY OF RESULTS:** A summary of the results of this research will be supplied to you, at no cost, upon request.

**VOLUNTARY CONSENT:** I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.

I understand that should I have any further questions about my participation in this study, I may call Ashley Hodge at 724-992-0460. I may also contact Dr. Linda M. Goodfellow, Chair of the Duquesne University Institutional Review Board, at 412-396-6326, and co-investigator Dr. Misook Heo, at 412-396-1662.

"I acknowledge that I have read this form, am at least 18 years of age and, by clicking the accept button and completing the pre-intervention online survey, it reflects my consent to participate in this study."

accept