Introduction to *Online Learning* Volume 23, Issue 1

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This first issue of 2019 contains 15 articles reflecting a broad range of topics, research questions, and methods. This collection of studies advances our understanding of cultural, theoretical, pedagogical, methodological, faculty, and professional development concerns in online settings.

The first section of this issue is titled Cultural and International Perspectives and contains the study "Interculturality in Online Learning: Instructor and Student Accommodations" by Gulnara Sadykova of Kazan Federal University in Russia and Carla Meskill of the University at Albany, SUNY. Online learning increasingly connects faculty and students across borders. While the number of online students studying abroad from their home countries is limited, international students who reside in the United States are more frequent enrollees in online courses. This paper examines the experience of one Chinese graduate student who had experienced a Confucian tradition and was adjusting to the Socratic context of an online U.S. graduate course. The study reports on the kinds of accommodations made by both the U.S. instructor and her Chinese student to overcome the twin challenges of the online environment and the complex process of academic socialization. Results indicated that both parties made accommodations in their approaches to both the medium of instruction and academic socialization.

The next section, Empirical Studies, contains six papers, the first of which is "African American Males Learning Online: Promoting Academic Achievement in Higher Education" by Susan Salvo, Brett Welch, and Kaye Shelton of Lamar University. Prior research indicates that racial and socioeconomic achievement gaps found in classrooms are replicated—and in some cases amplified—in online settings. For example, researchers have found that African American students have higher rates of attrition online than they do in classrooms. This study seeks to understand the experience of successful African American online students in order to enhance our understanding of barriers and identify supports needed to address these issues. The authors identify a variety of enabling circumstances and make recommendations to both policy makers and educators that may advance our understanding of how to help African American students succeed at higher rates in online environments.

The next paper in this section is "What if Online Students Take on the Responsibility: Students' Cognitive Presence and Peer Facilitation Techniques" by Ye Chen of the University of Alaska Southeast and Jing Lei and Jiaming Cheng of Syracuse University. This study continues a tradition of research using constructs from the Community of Inquiry (CoI) framework, focusing specifically on the development of cognitive presence. Past research into threaded discussion has frequently concluded that learners do not demonstrate high levels of cognitive presence indicative of integration of new knowledge and the ability to apply such knowledge to new contexts. While the answer to this issue may seem to be more guidance from the instructor in such activities, past research also suggests that instructor involvement in discussions can have a chilling effect on student participation. Better structured peer-guided discussion may be a way forward, facilitating

higher levels of cognitive presence while avoiding the sometimes suppressive impact of the instructors on learner dialogue. How best to structure such student-led discussion is the subject of this study. In a close qualitative and quantitative content analysis of more than 700 student posts, the researchers found that the involvement of peer facilitators was correlated with higher levels of cognitive presence and that certain types of initiating questions positively affect the level of cognitive presence.

The next paper in this collection of empirical studies is "Re-Examining the Construct Validity and Causal Relationships of Teaching, Cognitive, and Social Presence in Community of Inquiry Framework" by Patrick R. Dempsey and Jie Zhang of Johns Hopkins University Carey Business School. As the title suggests, this is another study that examines CoI constructs, in this case seeking to verify the constructs, document the relationships between the various forms of presence within the model, and to examine the impacts of other variables on it. The authors conclude that the structure of the model may need adjustment, especially finding (as my own research has indicated) that teaching presence does not cohere well as a single factor. Additional research into the constructs and their relationship seems warranted.

The fourth paper in this issue is "Exploring the Relationship of Background, Technology, and Motivation Variables to Business School Transfer Intent for Two Mixed Course Format Business Undergraduate Samples" by Gary Blau, Mary Anne Gaffney, Michael Schirmer, Bora Ozkan, and Y. J. Kim of the Fox School of Business and Management at Temple University. More than a third of all college students transfer to different institutions in a process that can be beneficial as well as disruptive and expensive. Students can benefit from a better fit with a new institution and realize cost savings from initiating study at a less expensive college and transferring "up." Transfer can also be disruptive—for example, students lose credits in the process. It can also represent a loss of tuition revenue for institutions. It is possible that institutional commitment is weaker for students enrolled primarily in online courses, who may see the institution in a largely transactional context. Does the availability of online course options shape students' inclination to transfer? That is the question these authors address. Drawing on a sample of more than 700 business students and using regression statistics, the authors conclude that being male, perceived favorability of online courses, and lower institutional commitment were significant correlates of intent to transfer across both samples studied. The authors suggest strategies for retaining students inclined to depart.

The next paper in this section is "Reflection in Learning" by Bo Chang of Ball State University. Reflecting on learning processes and outcomes is an important dimension of online learner self-regulation. But exactly how does reflection benefit students? This paper sought to assess the impact of reflection on learning in an online environment. The author purposefully designed and embedded reflective activities in online coursework and examined student discourse to isolate five themes on how reflection impacts learning: increasing the depth of knowledge, identifying areas which are deficient, personalizing and contextualizing knowledge, providing comparative references, and building structural connections in knowledge and social connections among learners. The author provides suggestions for designing reflective activities to promote online students' learning.

Rounding out this section is "Self-Determination: Motivational Profiles of Bachelor's Degree-Seeking Students at an Online, For-Profit University" by Carol Pugh of Grantham University. The author notes that private for-profit colleges enroll many students and have seen significant growth in recent years. She also indicates that graduation rates are low in such institutions. The study focuses on non-cognitive factors that may shape low graduation rates—

specifically motivation. Using a sample of students, the author measures whether they are primarily intrinsically or extrinsically motivated to be enrolled in college. Contrary to other studies, she finds that the majority of students in this for-profit college are extrinsically motivated. Such motivation is not supportive of the achievement of long-term goals, such as degree completion. There may be a correlation between the motivational profiles of students enrolling in for-profit colleges and the dismal graduation rates such institutions demonstrate. One might also reasonably argue that if for-profit institutions are eager to enroll students without assessing their aptitude for higher education, they should be required to invest in the academic supports and student services needed to ensure the learners succeed. Given their profit orientation, this seems an especially prudent policy direction if we are to continue funding students at such institutions through federal student-aid programs.

The next section in this issue contains five papers on the topics of Faculty, Professional Development, and Online Teaching. The first paper in this section is "Professional Development: Teachers' Attitudes in Online and Traditional Training Courses" by Egoza Wasserman of Herzog Academic College, Jerusalem, Israel, and Ruth Migdal of Elementary School, Israel. The authors of this paper note that not only have thousands of online courses and programs been mounted for college students across the globe, but an increasing number of faculty professional development programs are also offered this way. The authors sought to investigate teacher attitudes toward engaging in online professional development. They surveyed 469 teachers using an instrument designed to better understand attitudes toward online delivery of professional development. The paper reports significant differences between attitudes toward online and traditional training, in favor of online training. A multiple regression analysis found that the effectiveness of professional development courses can be explained by factors labelled *environment*, *course assignments*, and *attitudes toward ICT factors*. Implications for policy and practice are discussed.

The second paper is "Benefits of Online Teaching for Onground Teaching at Historically Black Colleges and Universities" by D'Nita Andrews Graham of Norfolk State University. A substantial body of research suggests that the faculty experience of conceptualizing, designing, and teaching an online course can have a positive impact on subsequent classroom instruction. This paper documents that connection among 12 participants at an HBCU institution in Virginia. Using qualitative research methods, the author documents three themes, including faculty roles and teaching practices, faculty communication strategies, and faculty changes in instruction. The paper provides detail on how participants modified their teaching practices from a traditional teacher-centered model to more student-centered pedagogy.

The next paper is "Teaching to Connect: Community-Building Strategies for the Virtual Classroom" by Sharla Berry of California Lutheran University. The role of community in online learning has been the focus of voluminous research in recent decades. The goal of attending to the social, emotional, and cognitive states of learners is essential in developing effective learning communities. This qualitative study uses faculty interviews to surface techniques used by instructors to promote a sense of connectedness and joint effort in the service of shared education goals. The author identifies four general strategies found to be effective.

The fourth paper in this section is "Award-Winning Faculty Online Teaching Practices: Roles and Competencies" by Florence Martin and Kiran Budhrani of the University of North Carolina at Charlotte and Swapna Kumar and Albert Ritzhaupt of the University of Florida. In this study, the authors build on previous research to focus on contemporary roles of online instructors. While much has been written on this topic, this piece contributes the perspectives of faculty who have been recognized by various organizations for their outstanding approaches to online teaching.

The authors identify five distinct roles including facilitator, course designer, content manager, subject matter expert, and mentor.

The final paper in this section is "Integrating UDL Strategies into the Online Course Development Process: Instructional Designers' Perspectives" by Korey Singleton, Anya Evmenova, Marci Kinas-Jerome, and Kevin Clark of George Mason University. This paper seeks to understand the viewpoints of instructional designers in supporting faculty to make online courses more accessible. There are two basic approaches to improving accessibility, which one might call the "ounce of prevention" and "pound of cure" methods. Universal Design for Learning (UDL) represents the former. UDL is a set of guidelines that encourage instructors to create a flexible, equitable learning curriculum that meets the needs of a diverse body of learners without the "cure" of post-development customization or retrofitting. The paper presents the results of interviews with instructional-design support professionals seeking perspectives on the integration of UDL strategies and how they believe faculty perceived such practices. The authors identified three main themes: instructional designer–faculty member partnership, factors impacting faculty adoption of UDL strategies, and faculty resistance to change. The paper includes recommendations for increasing adoption of UDL in online education.

The next section presents two papers that are reviews of the literature on specific topics related to online learning. The first paper is "Doctoral E-mentoring: Current Practices and Effective Strategies" by David Byrnes of Westchester Community College, and Lida Uribe-Flórez, Jesús Trespalacios, and Jodi Chilson of Boise State University. Online doctoral education continues to grow and represents significant challenges with regard to implementing the apprenticeship model common in such terminal degree programs. This paper provides a review of the literature on best practices in mentoring online doctoral students and organizes results into a framework reflecting six categories: competence, availability, induction, challenge, communication, and emotional support. This overview will be useful for faculty at institutions considering whether to offer and how to structure support for online doctoral programs.

The final paper in this issue is "Social Network Analysis and Learning Communities in Higher Education Online Learning: A Systematic Literature Review" by Shazia Jan, Panos Vlachopoulos, and Mitch Parsell of Macquarie University, Australia. As previously noted, decades of research point to the importance of community in online learning. Much of that research depends on time-consuming qualitative coding to identify elements of community important to learning. The purpose of this review was to judge the effectiveness of a potentially more automated and quantitative technique, Social Network Analysis (SNA), for identifying a Communities of Practice (CoP) and Communities of Inquiry (CoI) based on the structural components of each. The review reveals that there is a limited amount of research on this important topic, despite the promise of SNA for advancing inquiry on online communities. The authors recommend additional research and the development of a more fully integrated methodological approach that includes SNA measures and structural components of the CoP and CoI frameworks.

We invite you to read and share this issue with colleagues and to consider submitting your original work to *Online Learning*.

Interculturality in Online Learning: Instructor and Student Accommodations

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Abstract
As more distance education courses broaden their reach across borders, the chances of online classes being multicultural are high. This means that more often students may find themselves in courses designed for and by a host culture that differs from their own regarding its approach to teaching and learning. Compounding the difficulties inherent in a novel cultural environment and its unfamiliar forms of academic discourse are challenges represented by the medium itself. This yearlong case study examines the experiences and reflections of a Chinese graduate student and her U.S. instructor—specifically, the accommodations both made to mediate differences and mitigate these challenges. Analyses suggest that when both parties take differences into account and exercise thoughtful accommodations relative to both the challenges of the online medium and language socialization, positive learning experiences can result.

Keywords: interculturality, online teaching and learning, instructor–student interaction, international students, academic discourse

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Interculturality in Online Learning: Instructor and Student Accommodations

According to the Institute of International Education, 1,078,822 non-U.S. students studied in U.S. colleges and universities in the 2016–2017 academic year (Open Doors, 2017). The share of international students' total enrollment has increased from 1% to 5% in the last 75 years, and that number grew by 85% over the last decade. The U.S. continues to lead in international enrollments in offering online courses beyond its borders. Clearly, online education is popular. Successful participation and performance in online courses, however, depend on a range of complex factors (Shea et al., 2013). When online courses are well designed and orchestrated, they can foster dynamic, socially and culturally situated communities that study in multimodal ways that include forms of interaction distinctly different from live, face-to-face classrooms. Socialization into online learning communities is, likewise, distinct in the mode and manner in which it takes place. When such communities include students who are not from the culture which offers the course, nor are native speakers of its instructional language, this socialization becomes doubly challenging (Levy, 2007; Warschauer, 1998). Where discursive practices and their attendant cultural norms dictate, then intentions, power, investment, and learning outcomes diverge and confusion can consequently

result. Informed efforts to develop adaptive strategies and practices, what we call *accommodations*, help in this regard. Instructors' management, mediation, and accommodations of students' challenges matter as both educators' and students' roles continue to change (Blake, 2013; Salmon, 2004; Dzubinski, 2014). In short, contemporary online MOOCs and courses are rarely monocultural and thus present a number of potential challenges. We first discuss those challenges in terms of the online medium, and then in terms of the specific challenges attendant to the academic socialization of students whose home language and culture differ from that of the instructor and course, as is the situation in our case study.

Challenges for International Students in Online Courses

Both students and their instructors come to instructional venues with a set of expectations as to what instruction should look like. Both have been socialized into their respective academic discourse communities. By the time a student reaches graduate-level study, such academic socialization has been continuously reinforced over decades. Academic socialization online has been examined from the perspective of the roles each party plays in instruction. Traditional teacher-centered approaches, whereby instructors assume the dominant role, have not been generally accepted by Western online educators. Instead, a learner-centered approach, based on sociocultural views of learning, prevails (Meskill & Anthony, 2015; Palloff & Pratt, 1999; Ruey, 2010). Moreover, because the U.S. is a culture with *low power distance* (Hofstede, 2011), a U.S. instructor generally assumes a less authoritative position than that of other cultures with *high power distance*. Such instructors are more likely to treat their students as equals (Neuliep, 2009). As a result, U.S. online courses may be places where the instructor passes leadership in course discussions and other activities on to students.

The Medium

"Internet communication tools are not neutral media" (Thorne, 2003, p. 38). Ways of speaking, writing, and understanding continue to be shaped through and by human practices with them. For international students, then, the double challenge of a new academic culture in tandem with communication in a unique and often unstable medium is significant. Indeed, successfully completing an online course assumes a number of qualities and capabilities on the part of learners. They must be sufficiently committed to work at understanding material without the immediate physical presence of an instructor and peers. This implies skills, abilities, and commitments typically associated with autonomous learners (Lin, Zhang, & Zheng, 2017; Reinders & White, 2016). Depending on the student's country of origin, this constellation of abilities may be absent or markedly different from that of the country hosting the course and its instructor. Such differences can clearly deter student success. Difficulties in interpersonal communication and power distribution, and dissatisfaction with lack of instructor involvement are some of the challenges reported by instructors with international students in their online courses (Biesenbach-Lucas, 2005; Chen, 2006; Sadykova & Dautermann, 2009; Shattuck, 2005; Ware & Kramsch, 2005). It is also evident in the literature that international students need more time and their instructor's encouragement to complete online assignments, such as discussion posts or papers (Zhao & McDougall, 2008), as well as consideration of potential linguistic and cultural misunderstandings (Belz, 2005; Duff, 2010; Sadykova, 2013; Shattuck, 2005; Wang, 2007). Finally, having individuals from differing cultures communicate online can result in cultural contestation with fewer mediational means (e.g., a nonverbal, physical context) to mitigate misunderstandings (see, for example, O'Dowd, 2003; Ware & Kramsch, 2005; Warschauer, 2002).

Socialization Into Academic Discourse

Challenges for students from Eastern, Confucian traditions who find themselves in Western classes are both philosophical (i.e., how education is understood and enacted) and

quotidian. Western Socratic approaches to education emphasize critical thinking and problem solving, whereas a Confucian approach sees the accumulation of content knowledge—knowledge that comes from authoritative sources—as primary (Greenholtz, 2003; Hu, 2002). Moreover, in the context of online education, the quality of learning experiences, as understood by many Western online educators and scholars, is directly linked to *social presence* and *teaching presence*, which along with *cognitive presence*, constitute the Community of Inquiry (CoI) framework (Garrison, Anderson, & Archer, 2000), which has been widely used as a leading theoretical model guiding studies in online learning in higher education (Shea et al., 2010). The CoI presupposes a high level of interaction and engagement with the instructor and among peers, which may bear little resemblance to Confucian practices.

This study examines the experience of one graduate student who was once a Confucian learner but who socialized into the Socratic context of an online U.S. graduate course and beyond.

Perspective

Hofstede (1986) argues that "as teacher/student interaction is such an archetypal human phenomenon, and so deeply rooted in the culture of a society, cross-cultural learning situations are fundamentally problematic for both parties" (p. 303). Our cross-cultural inquiry set out to examine the potentially problematic interactions of a native Chinese student, Cathy, acclimatizing to Western-style online learning and the efforts on the part of her online instructor to mediate her challenges. In our effort to situate, fine-tune, analyze, and discuss our interpretations of these data, we employ a Vygotskian sociocultural lens that sees learning as a quintessentially social process (Vygotsky, 1981). We specifically employ the later work of the Scollons, whose discourse approach to the study of intercultural communication sees the individual and their culture as indivisible, in employing a single unit of analysis (Scollon & Scollon, 2001). While their work focuses primarily on group interactions, they examine the ways that ideological positions of discourse systems factor into the interpersonal communication of members of differing, interacting groups. Their constructs are thereby useful for our examination of a single individual interacting within a cultural context distinctly different from her own.

In our study of Cathy, we set out to examine if and what kinds of accommodations could be made by both a U.S. instructor and her Chinese graduate student to overcome the dual challenges of the online environment and the complex process of academic socialization. The research question, *What did the instructor and student do to accommodate these challenges in a semester-long graduate course?* guided study design, data collection, and how we interpreted them. The following section describes the methods employed to address this question.

Methods

The student participant for this study, Cathy, was recruited via a larger, separate research initiative reported in Sadykova (2013). That larger mixed-methods study involved the survey of 12 international students and follow-up interviews with five of them, including Cathy, a native of Shanghai, China. A *criterion sampling* (Patton, 2001) was used to identify those international students who took at least one fully online course in a U.S. university.

The survey and follow-up interviews revealed that Cathy could become an important key informant for an in-depth case study. On the one hand, being a student from China, the largest segment of international students in the U.S., she represented a *typical case*. On the other hand, the data collected during the first stage of the study showed that Cathy was participating in her first U.S. online course while being in her home country. Moreover, she

intended to change her status to on-campus student after completing the online course. Thus, Cathy made an excellent candidate for purposeful *intensity sampling*, as she "manifest[ed] the phenomenon intensely, but not extremely" (Patton, 1990, p. 182). Cathy's online instructor happened to be a research advisor of one of this study's authors, which made the collection of data more feasible and convenient. Therefore, Cathy was contacted again and invited to be the key informant for the case study. Upon arrival in the U.S., Cathy was asked to keep a reflective journal to record how her previous online experiences prepared her for on-campus learning. Her learning experiences were further discussed in a 59-minute face-to-face interview. Cathy's online instructor's interview responses, as well as the archived course logs of eight U.S. students who had interacted with Cathy which were retrieved from the online course, enabled the assembly of rich case study data.

Settings

Cathy's experiences are examined in two distinct settings: the online graduate course she completed while still in China and the face-to-face courses she completed in the U.S. All courses were offered via a school of education. The online graduate-level course was designed and taught by a U.S. instructor and taken mostly by in-service and preservice teachers from a variety of school disciplines. This was a spring course that lasted the whole semester and required no physical presence of students on campus. The course was delivered on the Blackboard Learning System (BLS), which allows course designers and facilitators to build and manage learning content and to provide synchronous and asynchronous tools for computer-mediated communication.

Cathy, the Key Informant

The key informant of the study was a female international student from Shanghai, China, who chose to go by her nickname, Cathy. The online course under analysis was the first U.S. course she took while residing in her home country; thus, she was a neophyte regarding online learning in U.S. academic culture. She had not lived in the U.S. before taking an online course but had visited the country several times when leading groups of Chinese students. It was also Cathy's first formal online learning experience.

Cathy held a bachelor's degree in international economies and foreign trade from a Shanghai institution. However, she chose to pursue a new career in the field of education and therefore enrolled in a master's program in TESOL (Teaching English to Speakers of Other Languages) at a large U.S. university. This program enabled her to take some of the courses fully online but required residency for other courses. Therefore, after taking one course online in the spring semester, she arrived in the U.S. and spent the full fall term taking courses on campus.

When asked to describe her individual culture, Cathy emphasized her affiliation with Asian culture and mentioned her large family consisting of four generations. While in her first interview Cathy wrote that she had no religion, in a later interview she disclosed that she could be described as a follower of Confucianism and that the Confucian concept of respect and obedience to authority may have shaped, perhaps even on a subconscious level, her learning.

Cathy's Online Instructor

The instructor who designed and facilitated the online course is also second author of this paper. She is a full professor at a large research university. She characterized her own culture as WASP (White Anglo-Saxon Protestant). In her early career, she worked as an ESL (English as a second language) instructor. This experience helped her to become "hyper aware of structures and idioms that non-native speakers may not have mastered" and taught her to alter her writing style and language when composing messages intended for international

students. She has extensive experience in conducting research in language education and designing professional development training for faculty working with English language learners. This experience, as well as several years of online teaching, extensive international travel, and fluency in two foreign languages, apparently provided the professor with knowledge and skills needed to effectively design and manage a distance learning course that included international students.

Data Analysis

The yearlong reflections, interviews, and follow-up interviews were analyzed by iterative thematic development and by seeking patterns and categorizations. In response to the research question, *What did the instructor and student do to accommodate these challenges in a semester-long graduate course?* data were first sorted thematically. Scollon and Scollon (2001) discourse analysis techniques were then used to examine the communication strategies Cathy employed in the context of learning. Specifically, we examined how Cathy maintained her *face*, "the negotiated public image, mutually granted each other by participants in communication event" (Scollon & Scollon, 2001, p. 45), when communicating with the instructor and peers. In the Scollons' framework, there are two sides of *face*: the need to be *involved* in communication and the need to show one's *independence* and let the other side be independent. We followed the Scollons' classifications and identified strategies of involvement, such as asking for opinions or claiming a common point of view, and strategies of independence, including apologizing or using family names.

The following section provides and discusses representative data illustrating the emerging themes of instructor and student accommodations to the challenges attendant to the medium and to academic discourse socialization.

Results

Instructor Accommodations

The professor's teaching philosophy aligns with sociocultural ideas underscoring the importance of human interaction. "I believe the most compelling dimension of online teaching and learning is the human one," she stated in her interview. Therefore, online whole-class and small-group discussions and teamwork were prominent in the course that Cathy happened to sign up for. Accommodations practiced by the instructor related to the concurrent challenges of the medium and academic socialization for international students will be discussed first, followed by discussion of accommodations made by Cathy in her role as an international online student.

The medium: The human dimension. The instructor reported that she felt quite strongly about the human dimension in teaching and learning. This, she stated, is paramount, be it live or online, and she has dedicated over 20 years to designing and teaching online courses by exploiting the medium's possibilities accordingly. At every opportunity, she stated, "there is productive interaction." At every opportunity, she integrates her instructional voice conversationally to guide and assess learning. Her courses are chiefly "generative discussions and teamwork with the public exchange and development of ideas as the key focus of online courses and I design them accordingly."

The medium: Public referencing. As part of her emphasis on interaction, the instructor publicly commented on students' assignments that she posted for whole class review. In her comments she did not just evaluate the work, but rather asked students additional questions that required them to think further about the topic or to provide more examples:

> A very nicely composed essay overall. Your articulation of the differences between instructional delivery and instructional conversation was of special interest to our topic at hand. Can you provide examples from your teaching of Spanish that exemplify good instructional conversation?
>
> Please say more about your vision of pedagogical applications for the facial recognition software! Please!

She also required that students respond constructively to one another's work which was formatively evaluated, thus exploiting the assessment dimension of asynchronous online teaching.

The medium: Multimedia resources. Whenever the opportunity presented itself, she reports, she referred students to multimedia sources as illustrations and to amplify course content:

> For those of you for whom ELLs and technology is a novel notion, I'm attaching a study that portrays optimal integrations and uses. Also, here is a link to a video that shows ELLs and their ESOL teacher learning around computers.

Multimedia integration, while appropriate for and supportive of the learning of all students, is particularly additive for non-native speakers of the common language. Indeed, visuals continue to be a major tool to aid language comprehension and learning (August, Artzi, & Mazrum, 2010; Meskill, 2002).

Academic socialization: Direct instruction. In response to what the instructor perceived as awkward attempts on Cathy's part to participate congenially in online group discussions, the instructor provided a detailed evaluation of Cathy's performance in the first part of the course and offered a number of specific strategies to improve the quality of her discussion posts. Specifically, she recommended Cathy do the following:

- comment on the group product of all groups, not just yours or one other;
- restrict congratulatory comment;
- try to move the discussion forward through clarification questions or thoughtful questions that inspire further consideration of the topic;
- share personal experiences that can serve to reinforce or expand the information.

These recommendations show that Cathy's instructor saw the need to provide her international student with *direct instruction* on how to make posts align with U.S. academic discourse.

Academic socialization: Linguistic precision vs. language variation. Based on her experience teaching non-native speakers of English, the instructor was very attuned to structures and idioms that non-native speakers might not have mastered. She consequently altered her writing to accommodate international students. To encourage linguistic precision on the part of all students, the instructor continually posted a remind box stating the following:

> Edit before you send! Because this course is a graduate course, it is expected that you will carefully read and edit your work prior to sending it. Every message that you post should first be composed using a word processor to prevent cosmetic errors; this way you can concentrate on demonstrating your highest quality writing. "Chat style" language is not acceptable.

While expecting linguistic precision from all students, the instructor was tolerant of the language variance of international students, specifically of Cathy's English, which was not without flaws in terms of grammar, vocabulary choice, spelling, and style. To illustrate the

extent of interlanguage variation, Cathy's posts and responses to interview questions are left unedited throughout.

Cathy's instructor did not see English proficiency as having any negative impact on Cathy's course performance. There were no posts in which the instructor asked Cathy to revise her English and resubmit posts or assignments. In fact, Cathy herself also felt that her English was adequate for learning in an English-only environment. This was evident from the survey she completed and from her interviews.

Academic socialization: Cross-cultural issues. Engaging in conversations about culture—be it with peers or instructor—might be highly desirable in a multicultural classroom (Banks & Banks, 2010), and Cathy was lucky enough to have an instructor who understood this and provided space for sharing culturally specific knowledge. In the interview, Cathy's professor explained that in her classes she purposefully sets up activities that enable "international students to have a voice … to be the experts, to present other ways of being and knowing the world" and that this aspect is critical in her teaching. Cathy's online instructor pointed out that "a cross-cultural dimension to the content and assignments" was one of the factors that helped an international student fit well into the course.

Academic socialization: Flexibility with deadlines. Cathy's online professor also chose to be flexible with assignments and deadlines. She offered Cathy an alternative plan for assignment submission when Cathy asked for flexibility due to her traveling demands. This shows that the instructor chose not to exercise her authoritative power as some strict professors might do, but rather preferred to *negotiate terms of meeting course requirements* without sacrificing the course learning outcomes or the students' responsibilities outside of school.

Data, particularly from student–instructor conversations, suggest that Cathy appreciated the efforts on the part of her online instructor. Evidently, the first part of the course was extremely challenging for Cathy, and the instructor's support was of significant importance. Cathy felt comfortable enough to contact her instructor on several occasions. Among 13 messages addressed to the instructor, nine were private messages and four were replies within whole-class discussions. The private messages to the instructor were related to missed deadlines, misunderstood assignments, and the like. The post below demonstrates that Cathy perceived the instructor and her graduate assistant as approachable and understanding and that she was thankful for their reminders about assignments:

> Professor, I am afraid I have just missed this part. Give me some time to think it over and participate in it. Thank you for your kind reminder.

Summary: Instructor Accommodations

In sum, the instructor made a number of accommodations that helped Cathy and other international students to overcome challenges of online academic socialization (Table 1). The instructor reports taking advantage of the static, archived nature of the medium to study posts and to develop appropriate scaffolds and responses. In short, the time she could spend considering responses to Cathy was valuable in that well-developed replies assisted in Cathy's successful negotiation of the medium and her socialization into the academic discourse. When it comes to international students, and to students overall, the instructor sees herself as a cultural intermediary, with culture always holding great promise and possibilities for instructional enrichment regardless of the subject area.

Table 1
Summary of Instructor Accommodations

Instructor Accommodations
Medium
• emphasis on the human dimension • public referencing • integration of multimedia resources in discussions
Academic Socialization
• direct instruction • linguistic precision vs. tolerance to language variation • integration of cross-culture discussion at every opportunity • flexibility with deadlines

Cathy's Accommodations

The literature suggests that international students are at risk due to a lack of previous experience studying in the U.S. education system. They therefore might need additional support to function in U.S. academic discourse (Zhang & Kenny, 2010; Zhao & McDougall, 2008; Wang, 2007). Cathy felt that she needed extra time to get "adjusted to a completely new learning style, requirement, evaluation, etc." Thus, the lack of adequate academic socialization to language and academic discourse conventions surfaces as the impediment to learning. The medium, however, to some extent mediates this due to its static, archival nature, whereby students can read and reread material, view and review videos, compose and recompose their contributions and assignments as many times as their waking life allows. This is in contrast to the rapid-fire nature of live classes, where what gets spoken is transient.

The medium. For Cathy this was the first online course she had participated in, and she needed to learn how to use the interface and tools. While her technical background was not specifically examined for this study, the data indicate that Cathy was technically savvy and did not have technical difficulties when learning online. She nonetheless had to adjust to the medium as a venue for learning with others. This she reported as more challenging than later when communicating with her U.S. peers in the live classroom.

Continuous access to course content. Cathy's unique experience as first a novice fully online student living in her home country and then as a face-to-face student studying on a U.S. university campus provides an interesting perspective on the affordances of both learning environments. Here is an insightful quote from her interview:

> I think online environment have advantage of being the words put there all the time, so that you can check always, whenever you want. If it is a lecture or presentation given by a professor or students, it lasts 5 or 10 minutes and if you miss it you just miss it.

Access to professor. Cathy notes that the online medium makes learning more independent while allowing students to ask for instructors' help *after* trying to figure out the topic on their own. That is, the online medium allows a longer distance between the need for help and the request for help:

> I found that actually, the professor, well, they actually talk a lot about in the classes, but the content period is to help you explain further what they have assigned to you to read in the previous class. I would say that if it is online, this job is totally yours. I mean if you just can't understand the reading, you have to read it again yourself and if your fail you can check with the professor…

Cathy used this feature often and well as she negotiated the online course and its norms and requirements, and thereby learned what she needed to do to make the learning experience work well for her.

Access to resources. When working to make sense of both new scholarly concepts and the discourse that expresses them, Cathy reported accessing online resources to assist her comprehension: "There are a lot of resources online that students can use." She also frequently used her online peers as resources, as reported in Sadykova (2014). Moreover, Cathy perceived the online environment as a useful medium for improving her language proficiency. "Honestly, as a foreign speaker, I am not very confident about my English literacy. I hope I can learn from you day by day," Cathy confessed to her peers.

Academic socialization. One of the largest hurdles for students from differing backgrounds is becoming acclimated to and socialized into the academic community. As revealed in the following sections, Cathy's efforts in this regard were significant.

Time accommodation. As noted previously, Cathy recognized early on that she would need to dedicate much more time to fulfilling the requirements of the online course than she was accustomed to. She actively and successfully negotiated this with her instructor. Cathy reported needing more time to get "adjusted to a completely new learning style, requirement, evaluation, etc." which has been reported elsewhere for students new to online learning (Sadykova & Dautermann, 2009; Smart & Cappel, 2006).

Queries and other communication strategies. As illustrated earlier, Cathy saw the opportunity to continuously contact her professor as a tremendous asset and used the mail function in the course to ask many questions:

> Professor, I like the idea that "in-class learning was complemented by online group problem solving". However, I am also interested to know what the role we teachers should play during this process. Should we be engaged in the online groupwork as an active participant, or rather we are facilitators or guides by implementing various instructional conversation strategies and do not have comments upon any of their thoughts and responses from students?

Asking questions was one of the communication *strategies of involvement* (Scollon & Scollon, 2001) that Cathy actively employed when interacting with her instructor and peers. Her involvement was also evident when she (1) showed strong interest in other participants' affairs by directly asking for their opinion (e.g., "What would you think of it?"); (2) pointed out common in-group membership (e.g., "I am so proud of being a member of this family"); (3) claimed a common point of view (e.g., "In China, we share the same problem, even to a greater extend"); (4) expressed reciprocity (e.g., "As you said, we have to keep in mind the strengths of new literacies, stressing its prominent role in global communication and sharing"); and (5) expressed optimism (e.g., "Let's take the responsibility of adults and hope for the best for our children's future").

Analysis of the online discourse revealed that communication *strategies of independence* (Scollon & Scollon, 2001) were less prominent in Cathy's interactions with the instructor and peers. However, she utilized these strategies when (1) making minimal assumptions about the wants, needs, or interests of others (e.g., "If you have any ideas about

our assignment, it is very welcome"); (2) minimizing threat (e.g., "Thank you…. but it seems I did not receive your invitation. Can you try again."); (3) apologizing (e.g., "Very sorry for the unconvenience I caused to the group"); and (4) using family names and titles (only when referring to the instructor).

Thus, Cathy's posts demonstrate her ability to mitigate the lack of face-to-face interaction and the need to learn more about U.S. academic discourse with the help of the communication strategies of involvement

Metacultural awareness. Cathy clearly exercises metacultural awareness throughout her U.S. graduate school experience. This is illustrated in the following journal entry, in which she responds to an uncomfortable incident where cultural misunderstanding occurred:

> The more we get to [know] each other on racial and cultural level, the more possible that conflicts and misunderstandings amongst class could be avoided. This is to say to be a good teacher who can successfully accommodate this foreign student, I would firstly try to establish personal friendship with him by showing trust upon him… I'd like to advocate class discussion within class of culture diversity by making comparison between the main culture and the foreign. It is only through adequate debating aroused from doubts and unknowns that students can learn from each culture and thus misunderstand and disrespect could be avoided.

No doubt Cathy appreciated such a culture-rich learning environment. Her posts demonstrate that she is a strong proponent of culturally sensitive teaching and learning in which the instructor takes on the role of cultural intermediary and expert.

Clarification. Cathy's other posts to the instructor within the whole-class discussions illustrated her appreciation of the instructor's attention to her ideas and her desire to further clarify the question under discussion:

> Professor [instructor's surname], It sounds like "blended learning" is centered on f2f conversation with an extension of online class. Do I make it right? We have no this kind of class in China now, with our technology use in education still lagging behind. I am wondering if it has already been widespread in US, does it work better compared with full online courses or f2f class format.

This post also shows that for Cathy the instructor was an important *source of knowledge about U.S. culture* and particularly U.S. education. Not knowing much about the system of education in the U.S. and seeing her instructor's engagement in conversations with her, Cathy took the opportunity to clarify the term "blended learning" and further satisfy her hunger for learning about U.S. education.

Confucian identity. Cathy was particularly insightful and articulate concerning her development as a Western-style learner, and she reports much of this having occurred during her initial online course. Having grown up and been educated in China, Cathy joined the U.S. course laden with epistemological and moral beliefs associated with Confucianism. For example, she portrays the role of the instructor in China as that of *an expert authority*, who preselects the content (based on curriculum requirements) and delivers this prepackaged knowledge in the form of a lecture. Students' active involvement is very limited, ruled by the instructor, and might be prohibited when seen as disruptive to the harmony of the group:

> I find classroom teaching [in China] is more teacher-centered, where students play a rather passive role who are used to accept whatever knowledge teachers endow with and they seldom challenge so called "authority"… Doubts or challenges from students are not exactly welcome… The class is more like a one-way lecture delivering…

According to Cathy, the content of the courses in China is often theory-driven, and "teachers spend a lot of time in explaining details of certain points at the sacrifice of group works, projects or experiments."

Cathy explains the adherence to teacher-centered instruction in the Chinese classroom as due to large class sizes and the assessment system: "Students here are exam-oriented and they are forced to do a large amount of written homework everyday in order to be able to perform well in the final college/middle school entrance examination." Because "exams historically drove the educational system of the Chinese Empire" (Suen & Yu, 2006, p. 46), it comes as no surprise that teachers feel responsible to train students accordingly.

Chinese classrooms, however, seem not to be organized only as lectures. While describing the Chinese classroom as teacher centered, Cathy also mentions activities that involve teacher–student and student–student interactions:

> In the Chinese classroom, students are mandatorily required to receive a lot of input and take examinations, and at the same time, they are also encouraged by teachers to produce communicative ideas by carrying out interaction between the instructor and the student or among all the individuals. Besides, teachers would also choose to do pair or group work as an alternative.

When describing a good teacher in China, Cathy also mentions the ability to "stimulate students' curiosity and creativity by using a good variety of teaching methods and interactive activities in class," a comment that does not quite align with her earlier description of the Chinese classroom as based solely on lectures.

The juxtaposition of these data indicates that group work and class discussions are *not* nonexistent in Chinese classrooms but are limited: They might occupy very little time, or be used only in classrooms conducive to group activities, such as language courses, or be part of the repertoire of only a few teachers.

Overall, Cathy sees both benefits and drawbacks of teacher-centered, exam-driven, and often theory-based instruction in Chinese classrooms. She is most dissatisfied with *the authoritarian role of the instructor*, which in her own words "is in its greatest need of change, given that it could hinder the development of students' creation, imagination and independent thinking which are all crucial elements for their future academic growth." However, she realizes that such a change may not happen very quickly due to deeply rooted Chinese traditions in education and the scale of reforms.

Cathy advocates that Chinese instructors assume the *role of reformers* and start the bottom-up process of "tremendous ideological transfer" from purely teacher-centered learning environments to more "individual-centered." In this process, Cathy would not like to completely abandon the instructor's *role as the knowledge expert and a peacekeeper* because she believes that a good teacher in her home country should act "as a captain who is in command of skills of keeping the whole class in harmony and order while encouraging individual imagination." According to Cathy, maintaining control enables instructors to avoid students' "endless and distractive talking" that may result from spontaneous class discussions in a student-centered classroom, as Cathy experienced in her U.S. on-campus classes. Reforms, to Cathy's way of thinking, should not be made at the expense of solid content knowledge.

Cultural differences become tools. Cathy's cross-cultural awareness affords her useful insight into similarities and differences to which she adapts and employs as tools to further her socialization. She confessed the following:

> At the very beginning I felt very uncomfortable with this kind of learning style in the US because in China what we do is listen to lectures and we never ever try to

> challenge him whenever we want. It's crazy, you know. We just obey, listen, observe very attentively all the time... But in the US I found that students always raise hands whenever they want, just cut and jump and do everything but it's crazy to me. [Laughing]. But I am learning it. I actually did it. [Laughing together]… But gradually I found out that this is very interesting interaction process and I found that professors actually prefer this, they like this.

Not only did Cathy learn fundamental Socratic practices of questioning and expressing opinions, but she was also able to use the online environment as a useful tool for her gradual transition to Western pedagogy:

> I would say that learning experience online last semester really help me a lot. I had almost no transition period that I would have to go if I hadn't had that online experience when (compared) to a student who would be suddenly exposed to American culture without any prior experience in a foreign country before. They have to overcome a lot of difficulties like cultural differences or the accent they are not very comfortable with, or other stuff about culture, about academic things, the curriculum, the way teacher lectures students, something they are not very familiar with. For me, I had this experience online before and I know how Americans actually learn and teach…

Summary: Cathy's Accommodations

In order to mitigate her many difficulties as a novice online student, Cathy used a variety of accommodations (Table 2): She capitalized on continuous access to course content, her professor, and supporting online resources. As regards academic socialization, Cathy used this opportunity to critically examine her beliefs and those of her academic hosts as she adapted to new discourse practices. She also asked for more time to do her work, as well as for clarification when needed. As she worked through her changing sense of herself as a learner, she turned challenges into tools, actively employed communication strategies of involvement, and practiced multicultural awareness as part of her personal development.

Table 2

Summary of Cathy's Accommodations

Cathy's Accommodations
Medium • continuous access to course content • access to professor • access to resources
Academic Socialization • recognizing need for more time • employing communication strategies of involvement • practicing metacultural awareness • asking for clarification • working through her Confucian identity • turning cultural difference into tools

Discussion

Both the course instructor and Cathy made accommodations to ensure Cathy's intellectual growth and academic success as an online graduate student. As regards the medium, the instructor emphasized the human dimension of teaching and learning through activity design and mediation. Further, she integrated multimodal resources into discussions and made public interthread referencing throughout the course. In terms of academic socialization, she used direct instruction to assist Cathy in accomplishing course requirements when she was struggling. She emphasized linguistic precision for all students, thereby encouraging her responsiveness to models of the online community's discourse. However, she was tolerant of language variation in Cathy's posts that demonstrated deviations from Standard English. Recognizing that Cathy struggled with the amount of work required by the course, she was flexible with deadlines. Finally, and perhaps most importantly, she integrated cross-cultural discussion at every opportunity, affording Cathy multiple and ripe opportunities to explore and reflect on herself as a learner in two distinct academic cultures, Confucian and Socratic.

Cathy, for her part, took advantage of the online medium's affordances of having all course content continuously accessible as well as continuous access to her professor, whom she contacted frequently. She accessed resources as needed to support her learning, including improving her language skills. As far as academic socialization is concerned, in addition to accommodating time pressures, asking questions, and employing other communication strategies of involvement, Cathy exercised her growing metacultural awareness in working through her Confucian identity. Moreover, she was able to use her online learning experience as a jump start in her development as a Western-style learner. In short, both instructor and student took what could have otherwise been hindrances to a successful academic experience and transformed these into affordances that supported Cathy's development as an international student in a new learning context.

Culturally determined beliefs about teaching and learning do shape instructional and learning practices. U.S. instructors develop learning environments that value the Socratic method of questioning, the generation of ideas, and the co-construction of knowledge. In such an environment, critical thinking and problem-solving skills are at the fore. However, these skills and their required dispositions might not be well developed among those international students who were educated in cultures that adhere to the Confucian philosophy or other cultural orientations, where the accumulation of knowledge from authoritative sources is a goal of learning, habitually attained by means of passive listening and memorization. Such approaches serve to mold learners' morals and prepare them to serve the needs of the group they belong to, but they do little to prepare them for more Socratic approaches to education.

Lack of expected learning skills (or *psychological tools*, in Vygotsky's terms) may significantly complicate the learning experiences of a student, as was evident in Cathy's case at the beginning of her online course. Direct instructor involvement in such cases is crucial to ensure that a student is provided enough scaffolding to avoid failure. Once students understand and learn the tools of the host culture discourse, they may become its avid followers and promoters (see Sadykova, 2013).

Implications

As is clearly illustrated in this case study, it is possible to take what are otherwise seen as challenges to international students in an online course and turn them into affordances and assets. Both Cathy and her instructor were able to accommodate challenges posed by the medium and by academic socialization processes to great effect. Integration of and responsiveness to cross-cultural reflection and conversation were key.

Results suggest that predeparture courses on socialization into U.S. academic discourse are thereby an attractive programmatic option. They also suggest that U.S. online courses with international students integrate whenever possible discussion of difference and celebration of what is learned therein. Clearly, Cathy sees the instructor's role in avoiding cultural conflicts as critical and regards class discussions about cultures as essential for classrooms that care about cultural minorities. Thus, courses that have a cultural component integrated into the curriculum would appeal to and actively involve international students. An integrated cultural component to any online course, then, is a potential asset for all.

Conclusion

The bar continues to rise in terms of students' quality of online performance, much of which demands clear written expression, a challenge for non-native speakers of the common language. Measures such as Educationally Valuable Talk, for example, are being employed as part of student assessments in online courses so that all student contributions are strictly evaluated (Uzuner Smith & Mehta, 2013). Students' posts will be judged against strict criteria that, while aligning with Western Socratic approaches, might appear completely foreign to someone whose cultural background is more Confucian, or more oriented toward high power distance or less individualistic approaches. Awareness of this on the part of U.S. online instructors is critical, as is further research on cultures in contact in online learning. Through Cathy's experiences, we have learned that online educators need to better understand their own discursive practices and their requirements so as to model, guide, mediate, and sometimes explicitly instruct international students in culturally appropriate ways of being and communicating in U.S. academic contexts if we wish to improve completion rates and slow attrition in online courses. Finally, as we witnessed with Cathy and her instructor, both instructors and students can benefit from exercising flexibility and responsiveness in online multicultural settings.

While this research is limited by virtue of its being a single case study, results and inferences are nonetheless valuable in delineating the challenges of intercultural teaching and learning online and, further, how these challenges can be both met and capitalized on in practice. It also suggests the promise of further research on multicultural online education.

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African American Males Learning Online: Promoting Academic Achievement in Higher Education

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Abstract
Online education is expanding within higher education. However, attrition rates for African American males enrolled in higher education in general, and in online courses specifically, is on the rise. Because the future of our nation depends on how well our educational institutions develop, nurture, and deploy talent, this study identified factors that promoted online course completion among African American male undergraduate students. The researchers interviewed 10 males who successfully completed online courses and identified significant themes. Factors that contributed to online course completion were financial assistance, prior academic achievement, previous information technology (IT) training, continuous academic enrollment, student selection of topics perceived as uncomplicated and less demanding or familiar due to sufficient prior knowledge, use of handheld digital devices, and a non-prejudicial learning environment. This study also revealed challenges and obstacles encountered by participants. Based on these findings, the researchers made recommendations that include strategies policymakers and educationalists can implement to promote academic achievement and degree attainment among African American males in higher education.

Keywords: distance learning, online education, African American students, male students, best practices, academic achievement

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African American Males Learning Online: Promoting Academic Achievement in Higher Education

Post-secondary education has become more accessible to a wider range of students since the arrival of online education (Allen, Seaman, Poulin, & Straut, 2016; McCoy, 2012), and substantial use of online courses within education is predicted in the future (Allen & Seaman, 2014). However, evidence suggests proliferation of online education may hinder the ability of some populations to attain a post-secondary academic degree. Researchers identified at-risk populations to include low-income students (Jaggars & Bailey, 2010), academically underprepared students (Figlio, Rush, & Yin, 2013; Jaggars & Bailey, 2010), students with lower prior grade point averages (Cochran, Campbell, Baker, & Leeds, 2013; Figlio et al., 2013; Xu & Jaggars, 2014), male students (Figlio et al., 2013; Xu & Jaggars, 2014), and African American students (Xu

& Jaggars, 2014). Indeed, African American males are particularly at risk for online learning attrition in higher education due to lack of academic preparation (Institute for Higher Educational Policy, 2010; National Center for Education Statistics, 2016). African American males have been recognized as an endangered species in higher education (Gilkey, 2012; Jackson, 2014; Washington, 2013). In fact, Dyce (2013) declared lack of participation among African American males as the most important issue facing American higher education today.

According to the National Center for Education Statistics (2015), completion rates for a bachelor's degree among African American males is a dismal 17%, which is the second lowest reported educational outcome in the United States within population subgroups (Hispanic males received the lowest score of 13%). In addition, a demographic shift is taking place, with African American, Hispanic, and Asian populations expected to increase to approximately half of the total U.S. population by 2050 (Ortman & Guarneri, 2009). With upcoming changes in demographics, combined with growth in online education and attrition among African American males, it is important to ensure African American males are successful in their online courses and have the ability to fulfill degree requirements (Palmer, Davis, Moore, & Hilton, 2010).

The objective of this article is to share findings of a 2017 investigation into factors that may have contributed to online course completion among African American male undergraduate students. By identifying the backgrounds, competencies, and experiences of successful African American online learners, administrators and educationalists can better predict online course success and circumvent failures by allocating appropriate resources at the proper times. This approach improves online course completion rates and ultimately graduation rates for all African American males so they can enjoy the benefits of higher education (Bambara, Harbour, Davies, & Athey, 2009; Palmer et al., 2010).

Review of Related Literature

The U.S. Department of Education (National Center for Education Statistics, 2011) reported African Americans are more likely than any other demographic group to enroll and complete their entire academic undergraduate coursework online (Moore, 2014). Ironically, historically Black colleges and universities (HBCUs) have been slow to create online programs for their students, with only 18% of 105 HBCUs offering online degrees. A primary reason for this decision were results from a longitudinal study that found on-campus engagement enhances retention (Astin, 1993). Due to high attrition rates for African American college students, HBCUs tend to focus their attention on face-to-face course offerings and programs (Flowers, White, Raynor, & Bhattacharya, 2012). However, some studies found African American students were significantly less likely to enroll in online courses compared with White students (Flowers et al., 2012; Shea & Bidjerano, 2014). However, African American students and students attending HBCUs who enrolled in online courses did so for the same reasons as other students who did not attend HBCUs—convenience (Kwun, Alijani, Mancuso, & Fulk, 2012; Moore, 2014).

African American online students tend to have lower grades compared with their White peers, which suggests that achievement gaps found in many traditional educational programs also exist in online programs (Rovai & Ponton, 2005). Reasons why these gaps exist are unknown. However, Rovai and Ponton (2005) offered clues, including reduced opportunity to hear the professor's explanations and examples and a lack of nonverbal student cues that may indicate students are confused or not grasping the material. African American online students also experienced lower perceived learning gains (Flowers, Flowers, Flowers, & Moore, 2014; Rovai & Ponton, 2005), fewer posting behaviors (Rovai & Ponton, 2005), less sense of a learning

community (Rovai & Ponton, 2005), and lower satisfaction scores (Ke & Kwak, 2013). Ashong and Commander (2012) found both African American and White students had positive views of online learning, but African American students reported significantly less positive views regarding the online feature of asynchronicity. It appears many African American students have a much stronger preference for real-time learning (Ashong & Commander, 2012) and face-to-face interactions (Merrills, 2010; Rovai & Gallien, 2005) characteristic of traditional campus-based courses.

African American students reported fewer microaggressions in online classrooms (Hall, 2010), which indicates online delivery may create a culturally neutral environment for these students (Stanley, 2014), allowing some students to distance themselves from negative stereotypes (Collins, 2014), especially students with past negative experiences in educational settings (Romero & Usart, 2014). Some African American students who withdrew from online courses indicated their decisions were partly due to inadequate technology and computer skills; insufficient levels of technical support; and perceived course difficulty, including problems accessing online course materials and online tools (Moore, 2014). African American online learners include older students (Collins, 2014; Williams, 2015), female students (Williams, 2015), full-time students (Williams, 2015), and students who either worked full-time or were unemployed (Williams, 2015). African American online learners had higher incomes (Collins, 2014), were independent (Collins, 2014) and unmarried with dependents (Williams, 2015), had a strong sense of positive racial identity (Collins, 2014), and had a high degree of cultural awareness (Rovai & Gallien, 2005).

There are few investigations of African American males learning online, with two involving high school students (Corey & Bower, 2005; McCoy, 2012), one exploring undergraduate students (Moore, 2014), and one examining male college students of color with the majority being Hispanic, not African American (Tucker, 2014). McCoy (2012) conducted a phenomenological study of six African American male high school students and noted they enjoyed the flexibility and independence of learning online and experienced increased self-esteem and reduced racial prejudice (McCoy, 2012). Participants reported online instructors were responsive in regard to electronic communication and prompt in grading of assignments, which increased their enjoyment of learning online. Furthermore, participants indicated online learning helped prepare them for college and future careers. However, participants struggled with technology and indicated a preference for African American online instructors. These factors had a negative impact on their learning experiences and their attitudes related to the future of online education for African Americans (McCoy, 2012). Moore (2014) also used a phenomenological approach during an investigation into reasons why African Americans withdrew from their undergraduate online programs. Fifty percent of participants in this study were male. Lack of interaction and inefficient communication were reasons why the majority of males in Moore's study left their online programs. These participants expressed a need for verbal communication, a desire for face-time, problems communicating with faculty and staff via electronic media, discomforts with technology, and insufficient technology support from the education institution.

Corey and Bower (2005) conducted a case study of an African American male high school student enrolled in an online math course at the school's media center, in addition to a face-to-face math course taught by a White female teacher. The student was identified as an educationally "at risk" student with a history of below-average grades in mathematics. The student claimed a language barrier existed in the face-to-face math course due to the terminology used by the teacher and that he did not experience this barrier in the online course. With the addition of online learning, the student achieved improved scores. The student noted fewer social norms in the online course, which promoted peer-to-peer interactions via an electronic message board, compared with the

traditional classroom. The study findings suggested the online course was effective at reducing cultural and learning barriers and had positive academic implications for the participant (Corey & Bower, 2005).

Tucker (2014) identified conditions within and beyond online environments that impacted academic success among male college students of color at a predominantly White college, while exploring race and racism and how these may affect academic progress. Tucker (2014) used a case study design that included data collection methods of web-based surveys, phone interviews, and a single, two-person group interview. Online course completion was not required for participation. Tucker (2014) identified factors *within* online learning environments that supported academic success, which included convenience and flexibility, a color-blind environment, support from and immediate interactions with faculty, and institutional support. Factors *beyond* the online learning environment were student characteristics of academic self-efficacy and educational resilience. In addition, students of color preferred traditional offline social supports from close social ties, which may serve to reduce the feelings of isolation and alienation commonly experienced by these students when learning online (Tucker, 2014). Limitations of this investigation were that approximately 20% of survey respondents were African American males, and therefore were an underrepresented population (e.g., 10 African Americans; five American Indians/Alaskan Indians; three Asian Americans/Pacific Islanders; 30 Hispanic Americans/Latinos). Of the nine phone interviews, only one African American was interviewed. While these studies add to the body of knowledge, clearly there is a gap in the research that investigates why some African American male university students completed online courses.

A deeper understanding is needed of the backgrounds, competencies, and strategies used by successful African American male online learners to identify factors that may influence online course completion and academic achievement (Merrills, 2010). Results of this study could help educationalists create or strengthen programs that promote online course persistence and improve college graduation rates for African American males. Study results may also provide an impetus and direction for expanding online programs among underserved populations in ways that promote academic achievement and degree attainment, as well as fill in a gap in the literature in the field of online education.

Methods

This qualitative research study employed a phenomenological approach to investigate factors that contributed to successful completion of online courses for 10 African American male undergraduate students. This section discusses the methodology used to conduct the investigation and includes information about the participants, the setting, data collection, and treatment of the data.

The participants in this study were enrolled at an accredited public university in the southern region of the United States. The university had a 2016 fall enrollment of 7625 students; 6961 of the total enrollment were classified as undergraduates. Forty percent of the undergraduate student population were male. Sixteen percent of the undergraduate student population were African American.

The participants were selected using a purposive sampling method, which allowed investigators to choose individuals who could best inform an understanding of a central phenomenon and who could best answer the research questions, which included inquiries regarding economic factors, technologic experiences, and academic factors, as well as challenges

and obstacles they encountered. Participants were African American male undergraduate students who had successfully completed an online college course indicated by a passing grade. The decision to use only those students who had passed an online course was intentional. The researchers were aware that eliminating those students who did not successfully complete an online course would limit the opportunity to compare the two groups. However, the researchers decided to narrow the focus on revealing the characteristics of those who have had success in online learning. To this end, the researchers gave more attention to the ways these individuals successfully completed online course work. Participant information is located in Table 1.

Table 1.
Participant Demographics

Participant no.	Age	Academic concentration	Enrollment status	GPA
P1	19	Biology	Junior	3.6
P2	28	Criminal Justice	Junior	3.0
P3	21	Finance	Junior	3.5
P4	21	Psychology	Senior	3.3
P5	22	Accounting	Senior	2.6
P6	28	General Studies	Senior	3.1
P7	35	Nursing	Senior	3.3
P8	20	Nursing	Junior	3.2
P9	26	General Studies	Senior	2.1
P10	20	Business	Junior	2.5

After permission was obtained from the Institutional Review Board, participants were recruited. Recruitment consisted of purposeful snowball sampling. Semi-structured interviews were conducted and recorded. A semi-structured design allowed participants to talk at length about their academic achievement strategies in order to give the investigators a deeper sense of the participants themselves and of their distance learning experiences.

Data from recorded interviews were transcribed. Each participant was sent his transcript for review. Each participant was asked to approve his transcript before the investigators used it for data analysis. Once the transcripts were returned, 10 separate spreadsheets were created and examined for emerging themes. Next, the data were coded. A list of emergent codes was created using a constant comparative method.

Interview recordings and transcripts were stored on a passcode-protected computer in an office. Informed consent documents were stored at a different secure location. Backup copies of files were stored on a secure, cloud-based file storage network.

Results

The purpose of this investigation was to identify factors associated with online course completion among African American male undergraduate students. In the role of phenomenologists, the researchers assumed human experiences could be expressed and made visible in the way participants experienced the phenomenon (Dukes, 1984). Ten participants were interviewed to answer the research questions. Significant statements were identified, thematized, and aligned with the research questions.

All ten participants utilized scholarships, grants, or student loans to pay for their education, which led researchers to believe that financial assistance had a positive impact on educational outcomes for African American male university students taking online courses. Technologic factors that had a positive impact on online course completion included previous information technology (IT) courses such as keyboarding, software applications, and computer literature, as all participants had taken IT courses during high school. In addition, 80% of participants used handheld digital devices such as smartphones to complete online course-related tasks because it was "easier" and the "the fastest way to do it," and "usually the one I do most of my work on." Computers were used "to type something, like a long thesis paper." It is unknown if financial assistance, IT courses taken during high school, or use of handheld digital devices for educational purposes are also characteristics among unsuccessful African American male undergraduate students taking online classes.

The majority of African American male undergraduate students who completed online courses in this investigation had experienced prior academic achievement (90%). One participant stated, "I was enrolled in college while attending high school and transferred 46 hours into my degree plan. I started college as a junior." Another participant revealed similar experiences prior to beginning college, "While still in high school, I was taking college courses. I would actually take classes on the college campus for half the day." Yet another participant indicated he "took a few advanced placement courses in high school" and completed "Math 113 my senior year" and "was able to get college credit for the math class." In addition, all participants indicated they were continuously enrolled in educational institutions and attended a university upon high school graduation, with some participants dually enrolled, as mentioned previously.

Seventy percent of participants selected online courses in subjects they perceived as easy or uncomplicated or in subjects with which they were familiar due to sufficient prior knowledge. One participant stated, "The online classes I take aren't necessarily rigorous classes. I take subjects that are not difficult for me to understand." Another participant reiterated this sentiment and expounded on the theme, saying that a face-to-face class helped him succeed in an online class by this statement:

> You teach yourself the subject in online classes, so unless you're very smart or you kinda know what the subject is, don't take it online. I dropped Accounting in class because it was really hard, so I tried it online, and I did better on the online. I passed the online course because I had the background knowledge of what I learned in class. So even though I failed the first time, I still gained something and applied it to the online class.

The theme of prior knowledge supporting distance learning was reiterated by another participant:

> I took a psychology class face-to-face and later took a psychology class online. The online psychology required the foundation of the face-to-face class, and the knowledge I had from the face-to-face class was brought over because I took it afterwards. So I had a better grasp. This order seemed more beneficial to me.

Math was singled out by several participants as a topic not to take in an online format with comments such as

> If I'm weak in a subject, I need to take it face-to-face. Math and stuff, I need to be sitting in the classroom looking at the teacher's face because I don't know how to do it. Some people can read stuff, go from that. If it's hard, I need to hear it explained to me, then I be straight. But no, if it's some writing or research, I could look at that and

> do that, but if it's something that I need to break down, like math, no, I need to see the teacher's face.
>
> And
>
> Some classes I need to take face-to-face. Mostly like math class and maybe chemistry. Yeah, I need to take these face-to-face; I don't want to do it online. I think online will be harder for me. I need to see them face-to-face and talk with the teacher. You know, in person and stuff like that. It is kind of a strategy

In another finding, 40% of participants indicated they felt online learning created a non-prejudicial learning environment. When asked about differences between face-to-face and online courses, one participant stated,

> It's an open forum where everyone has the opportunity to say what they want to say. In the classroom you may not get picked. That's being honest. In online classes, everyone has the same access. I hate to talk about all that kinda stuff. You know, race and that. But I see fewer people of color raising their hands. Because they already know that it's not going to happen. Now we can decide. In online classes, it takes all of those variables away. It makes you feel comfortable. No anxiety about any of that. I really do like it.

Another admitted,

> I dropped History 101. I was on my phone in class. The teacher saw me doing it and kicked me out of class. The guy next to me was doing the same thing, but wasn't African American, and he got to sit in class. Now I use the Internet and check the teacher. See who they are and to see if they know athletes. If they are athlete friendly, I'm more apt to take the class face-to-face. If I don't want to be involved with a teacher, I take it online.

Some participants preferred online courses because they were less competitive, indicated by statements such as

> I am not good speaking in front of people. The online format works for me because there's less competition and less pressure, and it's not time-limited, so I can sit back and think before saying why I feel a certain way about a topic…
>
> And
>
> In an online class, I go on my own pace. There's no pressure to worry about who's finishing first. When you take a test in class, people look around, see who's finished first. When I'm online I can go at my own pace. I don't have to worry about who's done and who's not done. There's less competition.

This investigation also examined challenges and obstacles encountered by African American male undergraduate students who completed online courses. Participants revealed challenges such as lack of professor interaction, lack of immediate feedback, insufficient number of examples, lack of notifications, lack of teacher-directed instruction, and lack of teacher-mediated assessments.

For example, one participant said, "Sometimes the material can get pretty hard, and you need a lot of examples. Typically in online classes you don't get too many examples. So I would like feedback and more examples." Another participant found online courses challenging due to lack of examples, including explanations of course outlines: "Some online courses are hard to follow because the teacher doesn't necessarily inform us what we are supposed to do. They just

make out a quick outline without explaining what we need to do. It's confusing." These thoughts were echoed by other participants in remarks such as the need for

> …more interaction with our professor. He was slow getting back to our grades and everything. Be quick to feedback. I mean, I know we're all busy, but feedback needs to be in a timely fashion. A timely manner. And grade-wise, just be pretty punctual at that

and "I would suggest a whole lot more feedback." When comparing face-to-face with online learning, one participant discussed the importance of immediate responses and liked to "ask questions to the teacher right there physically." He also did not like emailing the professor because "emailing doesn't really work. Sometimes it takes them about two or three days to reply. But in class you can ask right then and there and don't have to wait or nothing." When asked how to improve online education, one participant suggested, "…more video lecturing. Even maybe live lecturing. Just some lecturing where you could talk back. To where you can visually see them, and they can explain it to you. Just more live lecturing."

Remembering coursework and tests was one participant's biggest challenge. He confessed "I was just moving so fast. I was doing so much, playing basketball, working, doing so much" and that he "didn't have a computer, except for when I was at school. I didn't live on campus." He also admitted that "When I first started taking online classes, my grades weren't very good, because I would forget. I still forget about assignments and tests. That's my biggest thing with online classes. Yes, I just forget." When asked why he forgot, he replied,

> I'm doing so much other stuff. If I don't see it, like, if it isn't in my hand or I don't hear somebody say it, I'm not going to remember it, and that was going on with my online class.

He also said he recently missed a test because

> I totally forgot about the online class, because I don't sit in front of a computer until I think about it. I'm trying to do this and do that and work, so I just forget. I would just forget, and I still forget now.

Another participant made a similar comment about notifications, but he was distinct in how he wanted to receive them with a preference for hearing and attested, "I like face-to-face over online. Online takes a lot of dedication, because you don't have to go to class, and there are deadlines. Online makes it easy to get behind on your assignments."

Another participant stated that assessments in face-to-face classes provided him opportunities to explain answers to the professor and receive immediate feedback, which helped him earn grades better than those in his online courses. He stated

> For test situations, I prefer face-to-face tests, because if you give the short answer and your professor is there, you have leeway. They can understand what you are trying to say and give you feedback and partial credit while you are taking the test.

Another participant also preferred taking tests face-to-face, which he associated with better grades, as he illustrated:

> In face-to-face, your teacher may give you credit for at least trying on a problem versus online, you might not. It depends on the teacher; if they go in and see what you're doing. In face-to-face classes, you can ask the teacher during the test. Of course, they don't tell you the answer, but you can tell them, like, 'What does this mean? Am I on the right track?'

This same participant experienced obstacles with computer-mediated assessments, such as program input restrictions, when he claimed, "I am a better student in face-to-face classes" because online course assessments are "graded by a computer," and computer grading is "very accurate and don't give you points for trying something." He also noted that once he "did an assignment online and the computer marked it wrong" because it was "very particular on what you type in. If you type a little space, it's going to be wrong." He insisted he "typed it in how the computer wanted it, but it still said it was wrong, and this decreased my grade."

Discussion

In summary, after conducting a qualitative phenomenological study examining economic, academic, and technologic influences, as well as challenges, encountered by 10 African American male undergraduate students who successfully completed online courses, the following factors were found: financial assistance, prior academic achievement, previous training in information technology during high school, continuous academic enrollment, online courses on topics perceived as uncomplicated and less demanding or on topics that were familiar to the students due to sufficient prior knowledge, use of handheld digital devices, and a non-prejudicial learning environment. Challenges and obstacles encountered by many participants included lack of professor interaction, lack of immediate feedback, insufficient number of examples, lack of notifications, lack of teacher-directed instruction, and lack of teacher-mediated assessments.

Financial assistance also improved educational outcomes for African American male college students in face-to-face courses (Robertson & Mason, 2008) and among low-income online learners (Jaggars & Bailey, 2010). This finding suggests that access to financial resources to cover education-related expenses may support online course completion and academic degree attainment. Cochran et al. (2013) also found students with high previous academic achievement are more likely to persist in online courses. Varela, Cater, and Michel (2012) noted achievement orientation is a significant predictor of online learning success. Furthermore, McDaniel, DiPrete, Buchmann, and Shwed (2011) discovered educational attainment among African American males is more likely when there is no delay between high school graduation and college enrollment. Xu and Jaggars (2013) found certain academic subject areas appear more difficult to learn in the online context, and some subjects may require intensive student-instructor interaction. Bambara et al. (2009) noted online students struggled learning unfamiliar and complex course materials and Jaggars (2014) observed that college students preferred taking easy academic subjects online and difficult or important subjects face-to-face. Based on the results of this study and findings from other studies, supporting academic achievement, enrollment in information technology courses, facilitating higher education enrollment immediately after high school graduation, and ample online academic support for students learning difficult subjects may promote online course completion among African American male undergraduate students.

Several technologic factors were common among participants, including information technology courses taken during high school and use of handheld digital devices such as smartphones. This study supports Newell's (2007) and Fairlie's (2012) research, which revealed computer literacy and skills were important requisites for online course success. In addition, Zickuhr and Smith (2012) noted African Americans are likely to use their smartphones as the primary source of Internet access. While other studies linking online learning success with use of handheld digital devices have not been presented, educational institutions might consider using online course materials that are compatible with smartphones and ensuring that activities and tasks required for online courses can be completed on various smartphone operating systems.

Several successful online learners indicated a preference for online courses because they did not feel judged by the color of their skin or the speed of their responses during discussions or in testing situations. This finding contributes to previous findings that distance learning is valuable to African Americans who "could benefit more from online courses where they can be more uninhibited in online interactions," as noted by Romero and Usart (2014). This investigation also supports Hall (2010), who found African American students experienced "fewer microaggressions in the online environments," and Collins (2014), who discovered students used online classrooms to distance themselves from the stereotypes about being African American. To facilitate a culturally neutral learning environment, educationalists might consider expanding online discussion topics to reflect ideas and events from different points of view. For example, perspectives of people of different racial and ethnic backgrounds, people who practice different religions and faiths, or people of different nationalities or who live in different countries should be included in discussions either by instructional design or by the voices of diverse students within the online learning environment. In addition, rather than learn about events from the mainstream or the victor's point of view, current and historical events should also be examined from the perspective of the oppressed or overpowered.

This study also inquired about challenges and obstacles African American male undergraduate students who completed online courses encountered. Many of the participants stated they experienced lack of professor interaction, lack of immediate feedback, insufficient number of examples, lack of notifications, lack of teacher-directed instruction, and lack of teacher-mediated assessments, which led the researchers to speculate that these barriers may be related to a need for immediacy, clarity, and familiarity. The need for immediacy may be related to some participants' desire for quick responses to questions, quick evaluations on assessments, and timely notifications of upcoming events and deadlines. The conclusion about the importance of immediacy supports Tucker's (2014) research that found immediate interactions, including those from faculty, supported academic success among African American male college students. Tonsing-Meyer (2013) also found lack of immediate one-on-one communication and having to wait to have questions answered were a source of frustration among online learners.

With regard to clarity, some participants expressed a need to confirm that they understood directions they were expected to follow to complete assignments, projects, or assessments such as exams. This idea supports Horspool and Lange's (2012) conclusion that online students ask more questions than their face-to-face counterparts because online students need clarification. Fayer (2014) also found content clarification supported confidence and excitement and helped avoid learner confusion. Recommendations to address immediacy and clarity include providing on-demand academic support. This support may manifest in several ways. For example, if students desire face-to-face meetings with instructors or peer mentors, educational institutions might provide a drop-in space so students who need academic support including clarifying assignments can meet with appropriate individuals. Educational institutions might consider increasing the ease of contact between online students and academic support systems by utilizing multiple methods by which students can access immediate assistance. Methods may include email, phone, text, or making an appointment with an instructor at a time that is convenient for the student. A key element of this recommendation is brief response times by the institution, which may involve call centers that serve as intermediaries between students and the appropriate resource and ensures, perhaps by a follow-up message, that the students' academic needs were met in a timely manner. These types of accommodations may provide students ample academic support and adequately address many of the challenges encountered by students while completing online courses.

In matters of familiarity, some participants expressed a need for familiar teacher-directed instruction that mimicked face-to-face classrooms when learning complex subjects. This study supports the findings of Xu and Jaggars (2013), who suggested certain subjects may require intensive student-instructor interactions. Ashong and Commander (2012) also found African American students have a stronger preference for real-time learning and reported significantly less positive views regarding the online feature of asynchronicity. To address this obstacle, institutions might consider providing multimodal instruction beyond the current text-based and video-based instructional methods for online courses. For multimodal instruction to be accomplished, educational institutions might consider becoming involved with the development and distribution of virtual reality and other cutting-edge technologies that can be accessed by online students when learning difficult concepts or procedures.

Limitations in this study were that findings were based on subjective stories of participants, and these findings may not be applicable to academically unsuccessful undergraduate African American males, academically successful or unsuccessful undergraduate African American females, students of any race or gender in other undergraduate programs, or students of any race or gender enrolled in grades K-12 or enrolled in master's or doctoral degree programs.

Findings of this study suggest several areas that merit further investigation. This study was limited to a mid-sized university in the South where African Americans represented less than 20% of the population. Investigations conducted in larger universities, more racially diverse universities, or universities in other geographic regions would add to the knowledge base of African American male undergraduate students in distance learning environments. Participants indicated cultural neutrality of online learning environments was a factor in online course completion. While this perception was found in other studies (Collins, 2014; Hall, 2010; Romero & Usart, 2014), it is likely subjective and deserving of more rigorous investigation. Quantitative methods would be very useful in informing this area of research.

Dyce (2013) said lack of participation among African American males is the most important issue facing American higher education today. Policymakers and educationalists must be committed to best practices in creating and delivering educational content that is equitable and accessible to a broader range of learners by removing economic, academic, technologic, and other barriers. Hughes (2010) recommended schools and educators assume all African American males need assistance and take anticipatory and aggressive actions to support these students rather than waiting for these students to contact them. Without a college degree, African American males are less likely to obtain gainful employment and are more likely to live in poverty or be incarcerated (Gibson, 2014). Steps must be taken to improve degree completion rates among African American males, which is only 17% for a bachelor's degree (National Center for Education Statistics, 2015), especially with forecasted demographic changes (Ortman & Guarneri, 2009), growth in online education, and high attrition rates among African American males (Palmer et al., 2010). By identifying the backgrounds, competencies, and experiences of successful African American male online learners, administrators and educationalists can better predict online course success and circumvent failures by allocating appropriate resources for these students. This approach improves online course completion rates and ultimately graduation rates for all African American males so they can enjoy the benefits of higher education (Bambara et al., 2009; Palmer et al., 2010). Certainly, the gentlemen interviewed in this study had a genuine interest in helping other students experience what they experienced: online learning success, advancement toward achievement in higher education, and fulfillment of personal and professional goals.

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What if Online Students Take on the Responsibility: Students' Cognitive Presence and Peer Facilitation Techniques

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Abstract
The purpose of this study was to investigate the characteristics of online students' cognitive presence in a peer-facilitated discussion environment, and to identify the peer facilitation techniques that can enhance cognitive presence development. In this study, 738 discussion messages were examined by both qualitative and quantitative content analysis. It was revealed that although cognitive presence was detected in most discussion messages, it was exhibited at a relatively lower level. The involvement of peer facilitators was found to correlate with students' higher-level cognitive presence. It was found that asking initiating questions of a specific type by peer facilitators can positively affect the level of cognitive presence. In addition, a variety of the peer facilitation techniques were systematically studied to identify their effects on students' cognitive presence.

Keywords: Cognitive presence, peer facilitation, online instruction, discussion

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What if Online Students Take on the Responsibility: Students' Cognitive Presence and Peer Facilitation Techniques

Since cognitive presence represents the level of students' engagement in learning, it is an important indicator of the quality of online education (Garrison et al., 2003). Garrison et al. (2001) defined cognitive presence as "the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse" (p. 11). To design a lesson that stimulates rich cognitive presence, it is important to understand the characteristics of students' cognitive presence and the practices that support cognitive presence development.

Providing facilitation is a strategy to promote cognitive presence (Garrison et al., 2003). Numerous studies have investigated the facilitative role of instructors in supporting students' online learning (e.g., Gerber, et al., 2005; Guo, et al., 2014; Mazzolini, et al., 2003; Rovai, 2007). However, some scholars have expressed concern about making the instructor the sole provider of

facilitation (Hew, 2015). One concern is that the instructor's "authoritarian presence" may oppress students' thoughts and voices (Rourke & Anderson, 2002, p. 4). Students tend to take the instructor's statements as the authoritarian answer (Fauske & Wade, 2003). Some even feel nervous in expressing their thoughts and feelings when the instructor is present (Hew, et al., 2010). Also, they might consider instructors' questions as a form of assessment (Mazzolini & Maddison, 2003). This may further increase their hesitation to express themselves. Another concern is the high demand of time and energy for facilitating an active and asynchronous online class (Hew, 2015). Facilitating is like being a parent who is "on duty all the time" in an asynchronous class (Hew, 2015; Hiltz, 1988, p.441). Especially when the class size is large, challenges then arise.

Peer facilitation has been suggested as a way to share the leadership role with students (Poole, 2000). According to Kennedy (2004, p.753), peer facilitation is a method to auto-facilitate a learning system where "each individual member of the group exercises to some degree the leadership skills that enable the maturation process as a whole." In this process, students' diverse expertise creates a proximal zone of development, and this makes the facilitation possible (Baran & Correia, 2009; Kennedy & Kennedy, 2010). Students can also benefit from the facilitator role by gaining the hands-on experience of facilitating peers' learning (Hew, 2015). This can also help increase metacognitive awareness of their own learning (Garrison & Akyol, 2015; Poole, 2000).

We posit that our knowledge of instructor facilitation is limited in interpreting the dynamics of peer facilitation. Chan et al. (2009) pointed out that the mechanism of peer facilitation is fundamentally different from that of instructor facilitation. This is because peer facilitation grows out of a lateral relationship while instructor facilitation is based on a hierarchical relationship (Chan et al., 2009; Zhao & McDougall, 2005).

Research on peer facilitation is needed. Understanding peer facilitation can increase support to student facilitators, especially those who have limited domain knowledge and facilitation skills (Choi, et al., 2005). According to Onah, et al. (2014), the lack of pedagogical understanding of facilitation is the main cause of the lower completion rate in student-facilitated online classes. However, compared to the extensive studies on instructor facilitation, relatively few have investigated peer facilitation (Hew & Cheung, 2011; Ng, et al., 2012). The existing studies on peer facilitation have made limited attempts to clearly delineate the specific facilitation techniques that can improve students' intellectual engagement (Hew & Cheung, 2008; Hew & Cheung, 2011; Ng, et al., 2010). The gap has been recognized by scholars who have argued that peer facilitation deserves more research attention (e.g. Baran & Correia 2009; Chan, et al., 2009; Gašević, et al., 2015; Hew, 2015; Ng, et al., 2012).

This study explored students' cognitive presence in peer-facilitated online discussions and investigated the facilitation techniques used by student facilitators. By analyzing the discussion transcripts, we examined the following research questions:

1) What phases of cognitive presence are exhibited by students in the peer-facilitated online discussion? Are there any characteristics and patterns?

2) Does peer facilitation affect students' cognitive presence? Do different types of initiating questions affect students' cognitive presence differently?

3) What facilitation techniques are used by untrained peer facilitators? Can these techniques affect students' cognitive presence?

Review of Related Literature

Cognitive Presence

Garrison et al. (2001) developed a Practical Inquiry (PI) model based on Dewey's work on reflection process. As illustrated in Figure 1, this model described the process of developing cognitive presence in four phases: *Triggering event, Exploration, Integration,* and *Resolution*. Triggering event is the initiating stage. At this stage, students may explicitly express their feelings of struggle or attempt to locate and describe the problem. The second phase is Exploration. Students explore various resources and generate possible explanations or solutions. Common activities include brainstorming, information searching, and idea exchange. In Exploration, the information is simply collected, shared, and stored in a fragmented way, and students do not identify the relationships hidden in or among pieces of the information. The third phase is Integration. Students start to make sense of the information they have obtained by identifying relationships. Activities at this phase include comparing, contrasting, connecting, synthesizing, logical reasoning, elaborating, or explaining. The fourth phase is Resolution. This phase tests, through observation or experiment, the effectiveness of a solution/hypothesis in the real world.

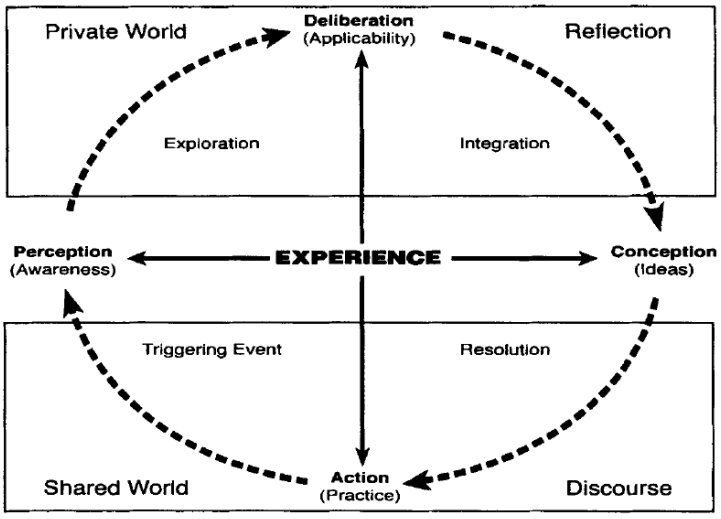

Figure 1. The practical inquiry framework (Garrison et al., 2000)

The PI model has been widely applied in analyzing various higher order thinking, such as critical thinking (de Leng et al., 2009), shared understanding (Stein et al., 2007), knowledge building (Celentin, 2007; Schrire, 2006), understanding construction (Koh et al., 2010), and complex cognitive task performance (Morueta et al., 2016). In recent years, the PI model has been increasingly used to examine students' learning in various environments. The studied learning environments include forum discussions in online courses (Yang, 2016; Zhao & Sullivan, 2017), informal online learning communities (Sun, et al., 2017), public social media (Keles, 2018), mobile and flipped learning (Wu, et al., 2017), voice-recorded reflections (Taddei & Budhai, 2016), blog conversations (Asoodar et al., 2014; Popescu, 2016), video gaming communities (Truong, 2017), and 3D virtual reality (McKerlich et al., 2011; Pellas & Kazanidis, 2012).

Facilitation of Cognitive Presence

Several attempts have been made to study the facilitation of cognitive presence. These studies explored the use of different facilitation methods, such as the use of experts (Kanuka et al., 2007), roles (Darabi et al., 2011; Kalelioglu & Gülbahar, 2014; Olesova et al., 2016), debate topics (Darabi et al., 2011; Kanuka et al., 2007; Richardson et al., 2010), cases and stories (Richardson

et al., 2010), brainstorming (Kalelioglu & Gülbahar, 2014), visual representation tools (Wang & Shan, 2018), think aloud methods and technologies (Beach & Willows, 2017), and reflection practice (Kanuka et al., 2007; Taddei & Budhai, 2016).

Peer facilitation has also been recommended as a promising strategy to enhance cognitive presence (Garrison, 2003; Garrison & Akyol, 2013; Shea, et al., 2014). Although early studies on cognitive presence emphasized the leadership role of teachers, Garrison et al. (2000) acknowledged that this role can be "performed by anyone in a community of inquiry" (p. 89). They later found that students were more involved in self-regulating their cognitive presence when a formal instructor was not present (Garrison & Akyol, 2015). Wang and Shan's 2018 study revealed that such self-regulation can positively affect students' cognitive presence level. To facilitate students' engagement in online learning, Garrison and Akyol (2013) encouraged letting students take the lead. They commented that "each participant not only has the responsibility to construct personal meaning but assume the role and responsibility to facilitate and direct that process individually and collaboratively…Without these co-responsibilities we simply do not have a community of learners" (p.85).

Peer Facilitation

The term "peer facilitation" has its origins in the context of school counseling (Anderson, 1976; Gumaer, 1973). Gumaer (1973) defined peer facilitation as the behaviors and skills "to begin a small group discussion and to use the facilitating responses of clarifying, reflecting, and giving feedback" (p.4).

A number of studies have reported the practice of peer facilitation in online learning. According to Kear (2004), peer facilitation can naturally take place in online discussion even without an instructor's intervention. Ioannou, et al. (2014) studied this naturally-emerged peer facilitation. More researchers implemented peer facilitation by formally assigning facilitative roles (e.g., Hew & Cheung, 2008; Ng, et al., 2010; Xie & Ke, 2011). Most of these studies reported positive results. For example, when peer facilitated, overall participation in discussion increased (Poole, 2000), students posted more and higher-quality posts (Seo, 2007), and the participation of student facilitators changed significantly in terms of quantity, diversity, and interaction attractiveness (Xie, et al., 2014).

Peer Facilitation Techniques

McLuckie and Topping (2004) pointed out that identifying peer facilitation techniques and providing support in using these techniques is important to improve the quality of peer facilitation and student learning. Several studies have explored the facilitation techniques used by peer facilitators. Choi et al. (2005) proposed a peer-questioning framework to guide facilitators' questioning behaviors. Based on Salmon's e-moderating model in 2000, De Smet et al. (2008) proposed several techniques that can be used in different facilitation stages. More researchers identified the peer facilitation techniques through analyzing students' online discussion transcripts (e.g. Baran & Correia, 2009; Chan et al., 2009; Ng, et al., 2010), or examined the use of facilitation techniques in student groups that achieved better performance (Hew & Cheung, 2008; Hew & Cheung, 2011; Lim, et al., 2011; Ng et al., 2012). Below, we discussed the particular peer facilitation techniques.

Questioning. In class discussion, a facilitator's contribution largely comes from the questioning behaviors (Chi, et al., 2001). The questions can be an important indicator of the quality of facilitation (Carlsen, 1993). Asking questions has also been reported as an effective peer facilitation technique (Chan et al., 2009; Choi et al., 2005; De Smet et al., 2008; Ng, et al., 2010;

Hew & Cheung, 2008; Lim, et al., 2011; Ng et al., 2012). Some facilitative questions that help develop students' thinking have been identified. These questions ask for explanation of *how* and *why* (Graesser, et al., 2002), for evidence drawn from life experience (Winne, 1979), and for evaluation of joint understanding (Hmelo-Silver & Barrows, 2008).

Making clarification. Making clarification is a technique that explains *why* and *how* and elaborates by "adding details, giving examples, generating images, and in general relating the new material to what is already known" (King, 2007, p.21; Gao, 2013). This is also a commonly used peer facilitation technique in online discussion (De Smet et al., 2008; Lim, et al., 2011; Ng et al., 2012). To make a clarification more effective, a number of strategies, such as giving analogies (Capon & Kuhn, 2010; Duit, et al., 2001; Gentner & Gentner, 1983; Glynn, 1989), providing examples (Atkinson, et al., 2003; Ward & Sweller, 1990; Zhu & Simon, 1987), and using diagrams (Chuy et al., 2011; Duit, 1991; Gan, 2008), have been reported in literature.

Promoting connection. Helping students find meaningful connections is another useful technique that can be used by student facilitators (Baran & Correia, 2009; Lim, et al., 2011; Ng et al., 2012). Some studies reported several different types of connections that can help facilitate learning, such as linking new knowledge with prior knowledge or personal experience (Caine & Caine, 1991; Cross, 1999), connecting among different aspects of the lesson (King, 1994), and referring to prior discourse (Abrams, 2003; Moore, 1993).

Summarizing and re-voicing. This is a strategy to distill the most important aspects of class discussion (Hung, et al., 1998). Researchers found that student facilitators can achieve this goal by synthesizing ongoing discussion (Chan et al., 2009; De Smet et al., 2008; Hew & Cheung, 2008; Lim, et al., 2011; Ng et al., 2012), repeating or paraphrasing important ideas (Chin, 2006; Hmelo-Silver & Barrows, 2006; Zhang, et al., 2011), and reflecting on the discussion progress (De Smet et al., 2008).

Providing information. Hew and Cheung's study in 2008 revealed that giving information was one of the most frequently used techniques by peer facilitators. To keep the discussion alive and progressing, peer facilitators provided additional information by sharing their prior knowledge or personal experience (Hew & Cheung, 2008), referring to authoritative sources (De Smet et al., 2008; Ng et al., 2012), presenting alternate/new perspectives (Chan et al., 2009; Hew & Cheung, 2008; Lim, et al., 2011), pointing out the problems (De Smet et al., 2008; Lim, et al., 2011; Ng et al., 2012), and giving personal opinions (De Smet et al., 2008; Hew & Cheung, 2008; Lim, et al., 2011; Ng et al., 2012).

Using positive social cues. Positive social cues are the words or symbols that express positive feelings and can help develop positive personal relationships (Chen & Chiu, 2008). Studies found that peer facilitators used social cues through showing agreement and shared understanding (De Smet et al., 2008; Lim, et al., 2011), giving compliment (De Smet et al., 2008; Lim, et al., 2011), showing appreciation (Hew & Cheung, 2008; Lim, et al., 2011; Ng, et al., 2010), and inviting contribution (De Smet et al., 2008; Hew & Cheung, 2008; Lim, et al., 2011; Ng, et al., 2010).

Methods

Research Context

This study was conducted in a 15-week graduate-level online course in the School of Education at a northeastern university in the United States. The purpose of this course was to educate students about emerging educational technologies. Weekly online discussion was an important activity in this

class. Each week, students were provided with readings on a particular technology topic and were required to participate in asynchronous discussions. They took turns playing the role of facilitator. They were required to ask initiating questions and to facilitate the ongoing conversation during the week. The instructor monitored the discussion and provided support when indicated. How the discussion started and evolved primarily depended on the students themselves.

Data Source

Data were collected from thirteen graduate students who enrolled in this course in Fall 2013. Among them, five were male and nine were female. Five were full-time K-12 teachers, and the others had some tutoring or coaching experience in college. The majority of the students were from education-related majors.

A total of 738 discussion posts across seven topics and 21 initiating questions were produced by students in seven, even-numbered weeks (e.g. Week 2, Week 4...Week 14). The number of posts each week ranged from 79 to 143.

Coding

The PI model was used to measure cognitive presence. During the coding process, the coding scheme was open to modification and it evolved based on the data. The finalized coding scheme is shown in Table 1.

Table 1.
Coding Scheme to Identify Cognitive Presence

	Indicators/ Learning events	**Descriptions**
Triggering event (T)	Describe problems	Recognize & describe a problem, and present background information on the problem
	Ask questions	Express sense of puzzlement by asking questions
Exploration (E)	Unsubstantiated disagreement/critique	Give unsubstantiated contradiction or critique of previous ideas
	Re-voice	Repeat or rephrase the previous ideas, but add no new ideas
	Brainstorm ideas based on external resources	Exchange information or ideas upon external resource such as: -Observations or past experience -Readings, internet, teachers, or other experts But they are not used as evidence to support a conclusion
	Brainstorm ideas based on personal beliefs or preferences	Exchange ideas or opinions upon personal beliefs or preferences, such as: -Add to established points but does not systematically defend/justify/develop addition -Present many different ideas/themes in one message -Offers unsupported opinions
Integration (I)	Justify agreement/addition	Reference to previous message followed by substantiated agreement, e.g., "I agree…because..."; Build on, add to others' ideas, and also justify the addition
	Justify disagreement/critique	Give justified contradiction/critique of previous ideas
	Justify hypothesis based on personal beliefs or preference	Develop and justify a defensible, yet tentative hypothesis based on personal beliefs or preferences
	Justify hypothesis based on external resources	Develop and justify a defensible, yet tentative hypothesis based on external resources such as: -Observations or past experience -Readings, internet, teachers, or other experts
	Create solutions	Create and justify a solution to the identified problem
Resolution (R)	Test/ Defend solutions	Apply the solution in real world, and use the experience to test or defend the solution

Note. Modified from Garrison & Anderson, 2001.

A single post was selected as the unit of analysis. We read through each post and searched the evidence in the content that corresponded to the description of the codes. Evidence included the overt behaviors or act (e.g., ask a question), connecting words (e.g. because), indicator sentences (e.g., agreement; "I Agree…"), expert resource ("the article pointed out…"), or the researcher's interpretation of the reasoning or argument.

A single unit might involve multiple codes since the cognition and discussion dynamics are complex (Garrison, et al., 2000). Although multiple coding can help reveal the complexity, it also increases the coding inconsistency (Garrison, et al., 2006). Therefore, we selected a coding method that found balance between the two. Particularly, each unit was coded for one category that was the most obvious. When there was more than one obvious category, we selected the highest level of cognitive presence.

Multiple coding was used only when Triggering event co-occurred with other phases of cognitive presence. This is because asking questions, an indicator of a Triggering event, is a very common behavior that can occur throughout the learning process. If we ignored the Triggering event by selecting the highest level of cognitive presence, it would misrepresent the facilitation behavior and limit insights about students' discussion process. Additionally, compared to other types of cognitive presence, a Triggering event characterized by questioning behaviors is relatively easy to identify, and this can decrease the possibility of inconsistency of coding. Therefore, when asking questions co-occurred with other phases of cognitive presence, we allowed multiple coding. For example, this post was coded as Exploration and Triggering event: "*I checked out Edmodo, based on Monica's comment, and it seems really useful! I'm curious to hear from those of you who are familiar with it. How do its functions compare to something like Blackboard?*" (All names are pseudonyms.)

Table 2 shows the frequency of posts that received 0, 1, and 2 codes.

Table 2.
The Frequency and Percentage of Posts that Received 0, 1, and 2 Codes

Number of codes in a post	Frequency	Percentage
0	45	6.1%
1	643	87.1%
2	50	6.8%
Total	738	100%

Note. A post with 0 code showed no cognitive presence; it did not mean that there was nothing in the post.

The analysis of peer facilitation techniques was based on both literature review and qualitatively analyzing data through Grounded Theory. We started by reviewing the peer facilitation techniques in literature and identified six types of facilitation that were recommended and supported by empirical studies, including: asking questions, promoting connections, making clarification, summarizing and re-voicing, providing information, and positive social cues. Then we went back to the data and reread the discussion transcripts, with an emphasis on examining the actions and behaviors of peer facilitators. We open-coded the specific behaviors and actions that can help support the particular type of facilitation we identified from literature. For example, in the category of making clarification, we examined the behaviors of peer facilitators in creating clarification (e.g., using analogy, using real-world examples, giving logical explanations).

When coding the peer facilitation techniques, we noticed that some of the specific behaviors in the peer facilitation might fall into multiple categories. For example, "adding details" and "giving examples" fall into both "making clarification" and "providing information"; "inviting contributions" falls into both "asking questions" and "using positive social cues." Although there

might be some overlap among categories, the context of the action determined which technique was being used. In interpreting the meaning of a single post, we first focused on the local level of the post being coded. If there was any ambiguity in interpretation, the content before or after that post was examined to get a broader context and to maximize the researchers' comprehension (Chi, 1997). When interpretation of peer facilitation techniques was needed for clarification, a "forward-and-backward" approach was used as suggested by Glaser's constant comparative method (1965).

Guided by the constant comparative method, codes were also assigned and created in a "forward-and-backward" way. Particularly, when assigning a unit to a category, this unit was compared with the previous units coded in the same category. When some aspects in the unit could not be explained by the existing code(s) but were closely associated with the studied construct, the code(s) were refined or new codes were added.

Two outside coders were invited to code the transcripts. The decision about how much content was to be tested was based on the suggestion of using 10%-20% of the total transcripts (Wimmer & Dominick, 1997). In this study, 105 posts (14%) were selected at random for the inter-rater reliability check in analyzing cognitive presence and learning events. Learning events served as the indicators of cognitive presence. All the posts created by peer facilitators were used to check the reliability of the six categories of peer facilitation techniques. Training was provided to outside coders. After the training, the researcher and coders independently coded the selected transcripts. Discrepancies were resolved through discussion. Krippendorff Alpha (Krippendorff, 2012) was used to check the inter-rater reliability. The inter-rater consistency is summarized in Table 3.

Table 3.

The Inter-rater Consistency of Coding Schemes

Coding scheme	Inter-rater consistency
Four phases of cognitive presence	0.79
Indicators/Learning events	0.70
Six types of peer facilitation techniques	0.87

Data Analysis

Content analysis was conducted to identify cognitive presence. We used quantitative analysis to examine the patterns hidden in the results of the content analysis: the frequency distribution, any reliable difference, or the relationships between and among the studied constructs. Frequency analysis, t test, and correlation analysis were conducted.

Results and Discussion

Characteristics of Cognitive Presence

From all the posts in the data set, four phases of cognitive presence were identified: Triggering event, Exploration, Integration, and Resolution. As shown in Table 4, Exploration (53.5%) had the highest proportion of the coded units, followed by Integration (28.9%), Triggering event (11.2%), and Resolution (1.1%). No cognitive presence was found in the remaining 5.5% of the posts. We conducted t test to compare these percentages and the results confirmed the significant difference between each other at the .000 (thousandths) level.

Table 4.

Percentage of Different Cognitive Presence Phases

Cognitive presence phase	Percentage
Triggering event	11.2%
Exploration	53.5%
Integration	28.9%
Resolution	1.1%
No cognitive presence	5.5%

The results revealed that Exploration accounted for the highest percentage of cognitive presence. Such dominance was not unique in the online peer-facilitated situation. Some related studies showed a very similar pattern (Garrison, et al., 2001; Meyer, 2003; Vaughan, et al., 2005). Even in face-to-face class discussion, Exploration still had the obviously highest proportion (Vaughan, et al., 2005).

One possible explanation is that it is natural for students to spend the most time on Exploration in their inquiry activities. This is because Exploration is of a divergent nature and requires time to explore different pieces of information thoroughly (Stein, et al., 2007). Also, Exploration is more likely to be interesting since exposure to different new ideas filled the experience with newness and wonder (Garrison & Anderson, 2003). Garrison et al. (2001) assume that Integration and Resolution are more intellectually demanding, and students tend to stay in their comfort zone by not leaving the Exploration phase.

We also examined the learning events that served as the evidence of cognitive presence. The distribution of the learning events is shown in Figure 2. Correlation analyses were conducted to reveal the relationship between different learning events. The unit of correlation analysis was a single discussion thread. We analyzed the correlation of the frequencies of learning events occurred in the 21 discussion threads.

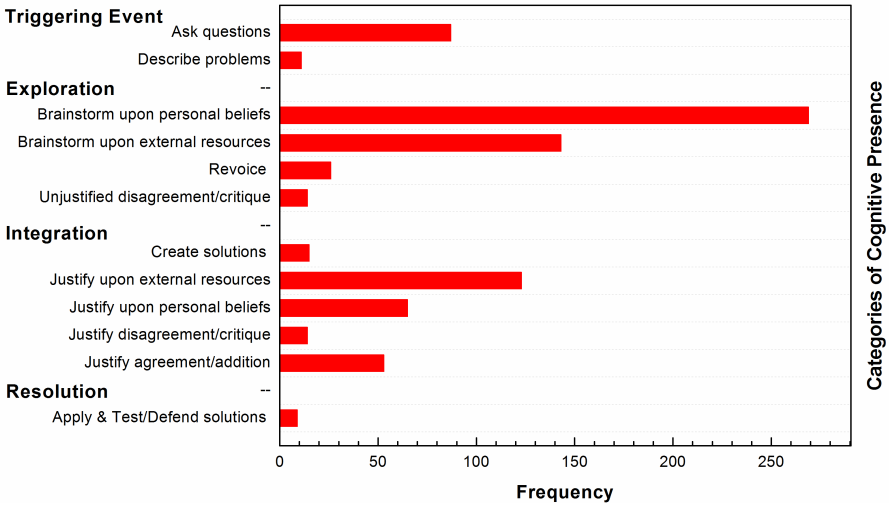

Figure 2. Number of learning events in online discussion

We obtained some findings about the learning events in each phase of cognitive presence. First, students asked questions significantly more than they described problems ($t=-9.06$, $p<.001$). Also, as shown in Table 5, we noticed that problem describing was significantly correlated with brainstorming based upon personal beliefs (Pearson $r=.14$, $p<.001$) and justifying hypothesis (Pearson $r=.218$-$.349$, $p<.01$). The process of describing a problem involves locating,

understanding and articulating a problem. We tend to believe that describing a problem demands more cognitive involvement than simply asking a question. Asking questions could be a natural reaction when students encountered problems. Thus, in class discussion, when students asked a question, a peer facilitator could encourage students to articulate more about the problem they identified. Second, in the Exploration phase, students brainstormed ideas significantly more based on personal beliefs and opinions rather than on empirical resources ($t=-6.90$, $p<.001$). In Integration, the opposite was observed. Students justified their hypothesis more based upon empirical evidence than on their personal beliefs ($t=-4.43$, $p<.001$). Third, solution creation was significantly correlated with justifying agreement (Pearson $r=0.201$, $p<.01$) and marginally correlated with justifying hypothesis on empirical evidence (Pearson $r=0.07$, $p=.063$). It seemed that in discussion inquiries, students were more likely to produce solutions when they actively involved in developing integrated thinking and making logical arguments.

Table 5.

The Correlations of Indicators/Learning Events

Indicators/ Learning events	**DP**	**AQ**	**UD**	**RV**	**BE**	**BP**	**JA**	**JD**	**JHP**	**JHE**	**CS**	**AT**
Describe problems (DP)	1	0.247	0.030	0.302	0.013	0.140**	0.024	0.373	0.218*	0.349*	0.247	0.211
Ask questions (AQ)		1	0.251	0.271	0.136	0.196	0.273	0.146	0.003	0.102	0.282	0.123
Unsubstantiated disagreement/ critique (UD)			1	0.073	.439*	0.177	0.118	0.076	0.247	0.069	0.156	0.081
Re-voice (RV)				1	0.266	0.424	-0.415	-0.329	-0.065	-0.224	0.116	0.287
Brainstorm ideas based on external resources (BE)					1	.525*	0.354	0.006	.459*	0.328	0.043	.559**
Brainstorm ideas based on personal beliefs or preferences (BP)						1	0.193	0.222	0.371	0.239	0.141	0.386
Justify agreement/ addition (JA)							1	-0.204	0.327	.624**	0.201*	0.218
Justify disagreement/ critique (JD)								1	0.090	0.307	0.294	0.153
Justify hypothesis based on personal beliefs or preference (JHP)									1	0.116	0.088	0.082
Justify hypothesis based on external resources (JHE)										1	0.070	0.340
Create solutions (CS)											1	0.030
Apply, test, defend (AT)												1

Note. *p<.05, **p<.01, ***p<.001

Although very few, if any, empirical studies have confirmed the hierarchical relationship among the four phases of cognitive presence, researchers tend to consider Integration and Resolution as the higher level of cognitive presence (e.g. Kalelioglu & Gülbahar, 2014; Kozan, 2016; Shea & Bidjerano, 2009; Stein et al., 2013). We followed this assumption, and in Figure 3 we demonstrated the distribution of higher- and lower-level cognitive presence. Although students exhibited cognitive presence in 95% of the posts, their cognitive presence primarily aggregated at the lower level. Akyol and Garrison (2011) pointed out that this pattern can be changed by

instructional design and facilitation. Their study proved that when facilitative intervention was added, Integration was improved greatly and achieved the highest percentage among the four phases. Thus, in the next step, we studied how the peer facilitation affected students' cognitive presence and what peer facilitation techniques were used.

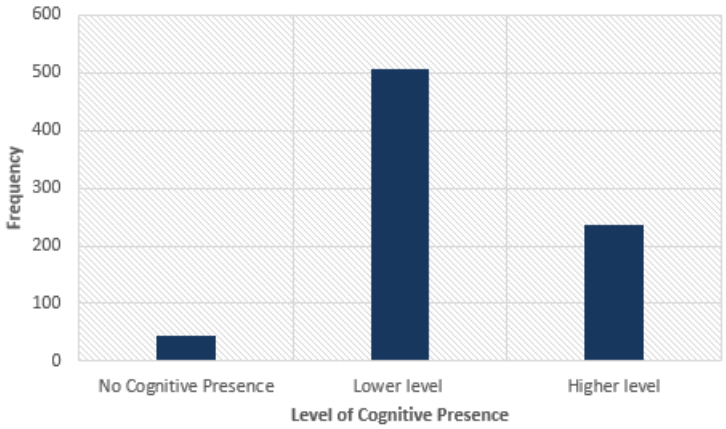

Figure 3. The frequency of different cognitive presence levels

How Types of Initiating Questions Asked by Peer Facilitators Affect the Level of Cognitive Presence

An important job for the peer facilitators is to ask initiating questions to start the discussion. In the present study, we examined the effects of the type of initiating questions on the level of cognitive presence.

Hakkarainen (2002) identified two types of questions that occur in students' inquiry: (a) factual questions which ask for factual recall of definition of terms, or description of processes/objects, and (b) explanatory questions which seek conceptual understanding through explanation, inference, and speculation. We coded the initiating questions from 21 discussion threads and divided them into two groups. The group of factual questions included questions that addressed facts about certain kinds of technology, definitions of a technological term, or experience of technology use (e.g., *Have you ever used other technology of Web 2.0, except for Wiki and Blogs? Make a brief description of it.*). The group of explanatory questions included the ones inviting explanation about a technology-choosing decision, or justification on opinions of a debated issue (e.g., *Haefner argues that online courses should utilize both synchronous and asynchronous communication. Do you agree that both forms of communication are necessary for a successful online course? Why or why not?*). Initiating questions that included both factual and explanatory sub-questions or that crossed both categories were coded then as explanatory. Working independently, two coders coded the 21 initiating questions. Their coding results were then compared and a full agreement was reached.

We expected that factual questions would induce more lower-level cognitive presence, whereas explanatory questions would induce a higher-level cognitive presence. However, in peer-facilitated environments, students' responses might be more unpredictable as they might feel comfortable in frankly expressing their thought and feelings (Hew, 2015). It is possible that any type of responses could emerge, and then any level of cognitive presence might be provoked. Does the effect of question type exist in peer-facilitated discussion? To answer this question, we compared the students' cognitive presence between the two question groups. As shown in Table

6, lower-level cognitive presence was observed in the factual group (t=-2.73, p<.05), and more higher-level cognitive presence occurred in the explanatory group (t=4.86, p<.001).

Table 6.
Comparison of Cognitive Presence (CP) in Two Types of Questions

	Factual Questions		**Explanatory Questions**	
	# of posts with low-level CP per thread	# of posts with high-level CP per thread	# of posts with low-level CP per thread	# of posts with high-level CP per thread
Mean	32.2	7.0	20.9	12.9
SD	9.09	1.67	6.85	3.91

Did the pattern revealed in Table 6 result from the different types of initiating questions, or from the different involvement of peer facilitators during discussion? To answer this question, we compared the cognitive presence of peer facilitators between the discussion threads started by factual questions and the threads started by explanatory questions. Figure 4 demonstrated the differences in facilitators' involvement, any of which did not reach the .05 significance level. We tend to believe that, except the type of initiating questions, the involvement of peer facilitators was equivalent for the two groups.

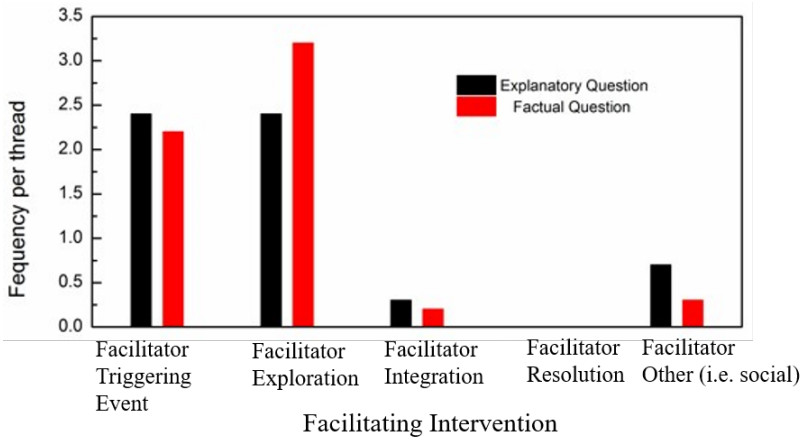

Figure 4. Comparison of the involvements (cognitive presence) of peer facilitators

We also compared the learning events of all the student participants. As illustrated in Table 7, discussion threads begun by factual initiating questions contained more brainstorming upon external resources (t=-2.78, p<.05), and marginally more brainstorming upon personal beliefs (t=-1.98, p=.062) and marginally more re-voicing (t=-1.83, p=.083). In contrast, in discussions begun by explanatory questions, we observed more justifying agreement and building on others' ideas (t=4.34, p<.001), more justifying hypothesis based on empirical evidence (t=3.13, p<.05), and marginally more applying/testing solution ideas (t=-1.84, p=.082).

Table 7.
Comparison of Learning Events in Two Types of Questions

Question type	Factual question		Explanatory question	
	Mean	**SD**	**Mean**	**SD**
Describe problems	0.33	0.52	0.60	0.63
Ask questions	4.33	2.94	4.07	2.89
Unsubstantiated disagreement/critique	0.17	0.41	0.87	0.99
Re-voice	1.83	0.98	1.00	0.93
Brainstorm ideas based on external resources	12.17	6.15	4.67	3.87
Brainstorm ideas based on personal beliefs or preferences	15.83	6.21	11.60	3.58
Justify agreement/addition	0.33	0.52	3.40	2.61
Justify disagreement/critique	0.50	0.84	0.73	1.03
Justify hypothesis based on personal beliefs or preference	2.33	1.03	3.40	2.13
Justify hypothesis based on external resources	3.33	1.97	6.87	3.07
Create solutions	0.33	0.52	0.87	1.19
Apply, test, defend	0.83	0.75	0.27	0.59

Therefore, the types of initiating questions asked by peer facilitators significantly influenced students' cognitive presence. When students were asked factual questions, they were more likely to engage in Exploration through fact recalling and restating, which could be considered as a lower level of learning. However, when students were asked explanatory questions, they were more likely to engage in Integration events. A higher level of learning occurred through connecting, justifying, and applying ideas.

Peer Facilitation Techniques for Enhancing Cognitive Presence

Based on literature review, we identified six types of peer facilitation: questioning, making clarification, promoting connection, summarizing and re-voicing, providing information, and using positive social cues. Using the grounded theory approach, we further analyzed all the facilitation behaviors of peer facilitators that support these six types of facilitation. These strategies, and the specific techniques that exemplify each, are summarized in Table 8. In Table 8, we also cited the studies from the literature that can provide evidence in support of the effectiveness of the facilitation techniques.

Table 8.
Summary of Peer Facilitation Techniques

Strategy	Specific techniques (supportive literature) and examples
Questioning	**Ask explanatory questions** (Graesser, et al., 2002; Hakkarainen, 2002; Hmelo-Silver & Barrows, 2008; King, 1999) Example: *Would you like to explain more about reasons behind this relationship?* **Ask factual questions** (King, 2007) Example: *I am not familiar with some of the tools you mentioned above. Are they free?* **Check joint understanding** (Hmelo-Silver & Barrows, 2008) Example: *You mean subscribing digitally, correct? Vs. a magazine/newspaper/journal subscription that comes in the mail*
Make clarification	**Give explanations through logical reasoning (but do not use analogy or real-world examples)** (King, 2007; Gao, 2013; Roscoe & Chi, 2007) Example of telling "why" and "how": *One reason that you have a blog group is that you will have an "audience"--your group members, in addition to the instructors, to read your /posts and share thoughts with you…* Example of elaborating on a topic: *I am finding that I like Edmodo because it's safe and colorful, but it's very much like Facebook and students try to treat it as such so it's a conversation we have had over time about conversations there and what the purpose of Edmodo for us is! I am glad you noticed they have a demo as well.* **Give real-world examples** (Atkinson, et al., 2003; Roscoe & Chi, 2008; Zhu & Simon, 1987) Example: *In my understanding no-tech AT usually involves no real material assistance. The example given in Dr. Lei's introduction is physical therapy.* **Create analogies** (Capon & Kuhn, 2010; Duit, et al., 2001; Roscoe & Chi, 2008) Example: *If we describe [consider] the web as a house, the Web 1.0 is the foundation of the house, and Web 2.0 is the house upper [on] the ground*
Promote connection	**Cue students' prior knowledge or personal experience** (King, 1994; O'keefe & Nadel, 1978; Pressley et al., 1992) Example: *Please contribute your thought about the above quote. Draw from your experiences as a student or teacher.* **Cue reading materials** (King, 1994) Example: *In Downes' article on educational blogging, Will Richardson is quoted as saying: "By its very nature, assigned blogging in schools cannot be blogging. It's contrived. No matter how much we want to spout off about the wonders of audience and readership, students who are asked to blog are blogging for an audience of one, the teacher" (p. 24). Do you agree with Richardson? Why or why not?* **Cue class projects** (King, 1994) Example: *I couldn't help from thinking about the blog assignment in this very class--does it meet the requirements that you mentioned?* **Cue previous discussion messages** (Abrams, 2003; Moore, 1993) Example: *Bringing cybersecurity knowledge back home is so important. I have also been thinking about the teachers themselves. As we have discussed in past weeks some teachers are against or hesitant towards technology, but what if they have to use it?*
Summarize & revoice	**Synthesize available ideas** (Hew et al., 2010; Hmelo-Silver & Barrows, 2006; Lim & Cheah, 2003) Example: *In the last few days here in class we have heard (or read) many thoughts about the responsibilities educators must take into consideration with their "internet presence." Your question was about whether or not an opinion leader should hold a neutral or mild position on sensitive or controversial topics?* **Revoicing-highlight the important idea(s)** (Hmelo-Silver & Barrows, 2006; Koschmann, et al., 1999; Zhang, et al., 2011) Example of repeating students' words: *I also like that you mention "Education needs to be ongoing and current.*" Example of paraphrasing students' ideas: *You raised a very sensitive point that students may become disinterested which is true and a problem as well*. **Reflect on the discussion progress** (Hmelo-Silver & Barrows, 2006) Example: *Based on numerous posts on the topic of teachers and the standards for personal behavior, we are mostly in agreement that we all need to be more aware of what we're posting online…*

Table 8. (continued)

Summary of Peer Facilitation Techniques

Strategy	Specific techniques (supportive literature) and examples
Provide information	**Share personal experience** (Hew & Cheung, 2008; Kobbe, et al., 2007) Example: *Students who know they have difficulties in learning but don't want to admit to it; and that there are still teachers and school who do not have a background in teaching students with disabilities. I had one friend growing up that knew he had trouble learning, but never said anything to his parents or teachers. This backfired on him as he began to fall behind academically and before he knew it he was doing poorly in school before he did anything about it. I grew up in this technological advancement age and for the most part, some of these assistive technology tools were beginning to be available for students; which would have greatly helped him in his studies*. **Provide information from authoritative sources** (Hew & Cheung, 2008; Kennedy & Kennedy, 2010; Kobbe, et al., 2007) Example: *I would like to share this quote by John Dewey, "If we teach today's students as we taught yesterdays, we rob them of tomorrow." We want to be proactive in our thinking with the end in mind. To do so we have to take into consideration the skills and strategies the younger generation will need in order to be successful.* **Present alternate perspectives** (Hew & Cheung, 2011) Example: *Don't you think it would be better to merge schools together and let them use well-equipped technology and tools together?* **Identify problems** (Hew & Cheung, 2011) Example: *...Safety of the information would be a big problem. Many hackers could steal your information and then steal your money.* **Give personal opinions** (Hew & Cheung, 2011) Example: *I do think there are some strategies you develop over time that will help you with any online class.*
Use positive social clues	**Show agreement/empathy/shared understanding** (Schwarz et al., 2007) Example: *I agree we need to teach the process of how this might look…* *You've got a point there! I know what it feels like to teach in a place where technology is not available*. *It makes me so upset when I hear stories like the one XX posted, and it seems like stories like these are just increasing…* **Praise** (Chen & Chiu, 2008) Example: *I like how you split up the opportunities and challenges in your post to clearly define both parts of the discussion questions*. **Show thanks** (Hew & Cheung, 2011) Example: *Thank you for bringing up critical point here. People's attitude towards using technology really matters and should be taken into account*. **Invite students to contribute** (Hew & Cheung, 2008; Hew & Cheung, 2011) Example: *I asked a few questions in relation to XX's post, but open all of my questions up to the entire group, so feel free to answer other questions as they come up, and please ask any questions of the group as well.*

Among the six types of facilitation techniques, providing information and questioning were the most frequently used techniques. In this study, peer facilitators provided information through sharing personal stories (39.4% of all the occurrences of providing information), introducing relevant resources (15.2%), giving personal opinions (53.0%), posing alternative perspectives (6.1%), and identifying problems (12.1%). Giving information is a "fundamental move" of a facilitator that may elicit new directions of thinking and bring important resources into group awareness (Kennedy, 2004). According to Schellens et al. (2005), a certain number of posts are needed for a discussion before moving to a higher level of knowledge construction. Hew and Cheung (2011) found that the strategy of providing information served this purpose.

Questioning was another commonly used strategy. We found that peer facilitators asked more explanatory questions in opening a discussion or following up a student's response. A total of 81.8% of the questions they asked fell into this category. Peer facilitators asked explanatory questions to elicit logical reasoning and explaining. Compared to explanatory questions, factual questions that lead to the telling of factual information were asked much less frequently (16.4%).

Peer facilitators created positive social cues through showing agreement/empathy/shared understanding (59.6% of all the occurrences of using positive social cues), expressing their compliment (25.5%) appreciation (36.2%), and inviting contribution from students (4.3%). Social cues are the words or symbols that reflect personal feelings and emotions (Chen & Chiu, 2008). Positive social cues can help create an environment where students feel that their contributions are expected and valued by peers (Chen & Chiu, 2008), and can also help minimize students' fear of having their ideas open to peer review (Hew & Cheung, 2011). However, this technique needs to be used carefully. Too many social cues might distract students' attention from in-depth thinking to surface social interaction (Hara, et al., 2000; Walther, 1996). The social cues of showing appreciation and praise became less effective when facilitators used them for almost every student without pointing out why and how their posts contributed to the group (Hew & Cheung, 2011).

Other peer facilitation techniques were employed. Peer facilitators applied the technique of summarizing and re-voicing to emphasize the important aspects of the class discussion. Among all the occurrences of this technique, 72.7% were restating students' ideas through repeating or paraphrasing. They also used the technique of making clarification, and 92% of clarifications were made through explaining "why" and "how" and elaborating to provide more details. To make a clarification more effective, they also used examples (28.9%) and analogies (2.6%) to make explicit the key features and relationships of/among concepts. In addition, peer facilitators used the technique of promoting connections. For example, they connected new knowledge with students' prior knowledge or personal experiences (51.7% of all the occurrences of promoting connections). In this way, they helped students develop new understanding based on the things familiar to students. They also asked students to connect the class discussion with other class activities in the course, such as article reading (41.4%), course projects (3.4%), or previous class discussions (20.7%).

We also found that peer facilitators tended to use multiple facilitation techniques in a single post. As shown in Table 8, for peer facilitators, the total number of the occurrences of all the facilitation techniques was much greater than the total number of posts they contributed. This phenomenon was also reported in Chan et al.'s study in 2009, and they revealed that the combination use of different peer facilitation techniques is more likely to increase the discussion continuity.

Table 9 shows the frequency of facilitation techniques used by peer facilitators.

Table 9.
Frequency of Peer Facilitation Techniques

Peer-facilitator	**Peer facilitation technique**						**# of occurrence**	**# of posts**
	Questioning	Make clarification	Promote connection	Summarize & re-voice	Provide information	Use positive social cues		
A	9	5	4	3	6	4	31	14
B	9	11	7	13	20	11	71	28
C	16	12	8	17	18	19	90	34
D	3	2	3	4	5	4	21	9
E	4	1	2	1	4	1	13	6
F	10	4	3	8	6	5	36	16
G	4	3	2	1	5	2	17	8
Total	55	38	29	47	64	46	279	115

To examine the relationship between these peer facilitation techniques and students' cognitive presence, we conducted correlation analysis. As illustrated in Table 10, all the peer facilitation techniques were found to be significantly associated with Triggering event. Summarizing and re-voicing, providing information, and using positive social cues were significantly related with Exploration level of cognitive presence. Although the literature typically shows that these facilitation techniques do affect students' higher-level thinking and learning, we did not, in this study, find significant correlations between these facilitation techniques and cognitive presence of Integration and Resolution.

Table 10.
The Correlation Between Peer Facilitation Techniques and Students' Cognitive Presence

Peer facilitation strategy	**Triggering event**		**Exploration**		**Integration**		**Resolution**	
	R	p	r	P	R	p	r	p
Questioning	.804**	.000	.299	.187	.066	.776	.132	.569
Make clarification	.606**	.004	.337	.135	.282	.215	.247	.281
Promote connection	.794**	.000	.362	.107	.068	.770	.100	.666
Summarize & re-voice	.494*	.034	.453*	.039	.329	.145	.023	.923
Provide information	.825**	.000	.581**	.006	.121	.602	.012	.690
Use positive social cues	.778**	.000	.557**	.009	.193	.403	.020	.931

Note. **Correlation is significant at the .01 level; *correlation is significant at the .05 level.

Conclusions

In this study, we let students take on the responsibility of facilitating their class discussions. In the peer-facilitated environment, we examined the cognitive presence of students and the facilitation techniques used by peer facilitators.

Our analyses revealed several major findings. First, in a peer-facilitated online environment, students demonstrated four types of cognitive presence: Triggering event, Exploration, Integration, and Resolution. However, students' cognitive presence mostly stayed at a relatively lower level. Then, the pressing issue was to determine the facilitation practices that can promote students' cognitive presence development.

Second, peer facilitators' initiating questions affected students' level of cognitive presence. The results of this study have revealed the statistically significant association between peer facilitators' involvement and students' higher-level cognitive presence. Even though the dynamics in the class discussion is complicated, the initiating questions still have the power to influence the subsequent dialogic inquiry. We found that factual questions (such as what, who, when) are more likely to induce retelling and descriptive articulating, whereas explanatory questions (such as why, how, what-if) have more potential to trigger a higher level of integrated thinking such as idea connection, justification, and application. It is reasonable to assume that this also applies to the follow-up questions in discussion.

Third, we investigated the facilitation techniques that were used by peer facilitators. The techniques included: questioning, making clarification, promoting connections, summarizing and re-voicing, providing information, and using positive social cues. We found that peer facilitators tend to use a combination of facilitation techniques in a post when responding to the students. The results also revealed the association between these peer facilitation techniques and students' cognitive presence of Triggering event and Exploration. It's possible that some facilitation techniques are more supportive of different levels of cognitive presence. This is suggested by the fact that three facilitation techniques—summarizing and re-voicing, providing information, and using positive social cues—were significantly correlated with Exploration, while the other three techniques were not. Evidence from literature supported the association between these techniques and higher-level thinking. However, we did not find the significant correlation between the peer facilitation techniques and higher-level cognitive presence. One possible reason is the small sample size (21 threads by 13 students). If sample size increases, we tend to believe that more information will be obtained about the association between peer facilitation and higher-level cognitive presence. Another possible reason could be the sizable restriction of range of higher levels of cognitive presence. Especially for Resolution, the percentage is very low. The lack of significant correlations may be a result of extremely low occurrence of higher-level cognitive presence for those discussions. A third reason could be that peer facilitation behaviors were not used intensively enough to allow us to detect the statistical association. In this study, these students were not trained in using facilitation techniques, and we examined their naturally-emerged facilitation behaviors. These facilitation techniques might not have been used frequently enough, and they may not have been used at the proper point. As a result of this, it is possible that we were not able to detect the correlation as expected. Literature also suggested that students might not spontaneously function effectively to facilitate a convesation (Weinberger, et al., 2005). They may fail to listen to peers' voices, ignore the important aspects of the discussion, or miss the opportunities that can move the discussion to a higher level. All this will consequently influence the quality of discussion. Thus, we recommend providing student facilitators with suppport or training on using these techniques to enhance their awareness/use of the faciliation techniques.

Future research includes experimenting with these peer facilitation techniques where we train student facilitators on using these techniques. We would like to conduct conversation analysis and time series analysis on discussion threads/episodes that have involved active cognitive presence and peer facilitation. In this way, we can examine the dynamic process of how cognitive presence evolves overtime, how peer facilitators use facilitation techniques, and how these techniques affect students' cognitive presence development. To address the sample size/range restriction issue, future studies would collect more data from a larger sample of discussions with more examples of higher-level cognitive presence.

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Re-Examining the Construct Validity and Causal Relationships of Teaching, Cognitive, and Social Presence in Community of Inquiry Framework

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Abstract
Despite the prevalence of research on the Community of Inquiry framework and its associated measurement instrument, more research is needed to re-evaluate the factor structure, study the effects of covariates or measurement invariance, and explore the relationships among the three presences. Results of this study indicated that (a) teaching, social, and cognitive presence are each multidimensional and higher order constructs; (b) measurement invariance was fully achieved for gender and partially for age, ethnicity, discipline, and online experience; (c) structural relationships of the three main constructs—teaching presence, social presence, and cognitive presence—suggested potential psychometric adjustments. The teaching presence construct in particular should be reconstructed to appropriately reflect and measure the construct as conceptually defined—as a distribution of teaching responsibility and authority—as opposed to how it is currently operationalized in the Community of Inquiry instrument—as a centralization of responsibility and authority with the instructor.

Keywords: Community of Inquiry, structural equation modelling, online education

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Re-Examining the Construct Validity and Causal Relationships of Teaching, Cognitive, and Social Presence in Community of Inquiry Framework

The Community of Inquiry (CoI) framework is widely used in the design and study of online learning environments (Halverson, Graham, Spring, Drysdale, & Henrie, 2014; Garrison, 2017). Through the operationalization of three essential presences—*teaching*, *social*, and *cognitive*—a community of inquiry emerges as learners collaboratively construct meaning within the context of shared academic achievement. Even while the statistical and conceptual interdependence of the three presences has been demonstrated (Archibald, 2013), and despite the widespread usage of CoI instrument, Shea et al. (2014) recommended "continued focus to enhance its explanatory power" (p. 16), and Garrison (2017) called for continual development and refinement of both the framework and its associated instrument. Therefore, the present study was designed to (a) re-evaluate the factor structure of the CoI instrument; (b) study the predictive effects of gender, ethnicity, age, online course experience, and course discipline on the CoI measurement model; and (c) explore the casual relationships among the three presences.

Review of Related Literature

The "most widely referenced framework associated with the study of online and blended learning" (Garrison, 2016, p. 68), the CoI is the principal framework for the study and design of purposeful e-learning communities (Garrison, 2017; Halverson et al., 2014). Garrison, Anderson, and Archer (2000) first introduced the framework through their work on computer-based conferencing. Unlike traditional distance-education models, which positioned learning as an individualistic and autonomous activity, computer-based conferencing utilized text-based, asynchronous discussions to connect learners to one another, thus enabling the creation of a community of learners, a community of inquiry.

Garrison et al. (2000) proposed three essential elements, or presences, of these communities of inquiry—*teaching*, *social*, and *cognitive*. The term *presence* is used to connote the idea of fidelity—how *real* the learning and the learning environment are (Hosler & Arend, 2013). The greater the presence, the greater the fidelity, and thus the more realistic—that is, the less mediated—the learning experience is perceived to be. In creating an authentic collaborative-constructivist learning context, then, the three presences work together and support one another. To wit, social presence has been shown to be the mediating factor between cognitive and teaching presence (deNoyelles, Zydney, & Chen, 2014; Joksimović, Gašević, Kovanović, Riecke, & Hatala, 2015; Whiteside, Dikkers, & Swan, 2017), cognitive presence is most indicative of student satisfaction and success (Holser & Arend, 2012; Yang, Quadir, Chen, & Miao, 2016), and teaching presence is understood to be of the greatest value to students (Hodges & Cowan, 2012; Preisman, 2014) and the most critical in establishing purposeful communities of inquiry (Borokhovski, Bernard, Tamim, Schmid, & Sokolvskaya, 2016; Rockinson-Szapkiw, Wighting, & Nisbet, 2016; Rubin & Fernandes, 2013). As such, Archibald (2013) reported that, in creating communities of inquiry, each of three presences is statistically and conceptually interdependent, and Wicks, Craft, Mason, Gritter, and Bolding (2015), and Rockinson-Szapkiw et al. (2016) showed the framework as a whole—through the operationalization of the three presences—to be predictive of learning outcomes.

Social Presence

Learning as a shared experience builds on and from interactions of both intrapersonal and interpersonal relationships. The individual affective and expressive concerns of individuals are thus informative of and shaped by the learning community more generally. In this way, within the CoI framework, *affective communication*, *open communication*, and *group cohesion* together form the social presence construct. *Affective communication* reflects the traditional conception of social presence, the idea that social presence is about the projection and acceptation of the individual into and within the learning community. *Open communication* reflects the significance of a trusting environment to the process of critical discourse. Finally, *group cohesion* reflects the role that shared commitment to the achievement of learning goals plays in the formation of a community of inquiry. Garrison (2015) identified this more complex understanding of social presence—where individual contributors become critical members of a larger, collaborative community—as a change of focus "from the person to the purpose of the communication" (p. 71). In this same way, each of the three subfactors contributes both individually and corporately to the formation of social presence within a community of inquiry.

To this shift from the person to the purposes of communication, within a community of inquiry social presence is operationalized foundationally through identification with shared learning goals, through the purposeful pursuit of specific cognitive ends (Garrison, 2016). As such, Whiteside et al. (2017) identified social presence as the "unifying component that synchronizes

interactions among the instructor, students, academic content, media, tools, instructional strategies, and outcomes within an online learning experience" (p. 2). It is precisely in this way that social presence is understood to be the mediating factor between cognitive and teaching presence (deNoyelles, 2014; Joksimović et al., 2015; Whiteside et al., 2017).

Cognitive Presence

With the purpose of engaging learners in deep and meaningful learning, communities of inquiry are designed around the Practical Inquiry Model (Garrison, Anderson, & Archer, 2001). Based on Dewey's (1933) model of reflective thought, where learners critically assess their beliefs in the context of personal reflection and shared discourse, the Practical Inquiry Model serves to frame the interactions and intersections of personal and private thought in the construction and confirmation of knowledge (Garrison, 2017). According to the model, cognitive dissonance, resulting from a *triggering event*, occurs in the public sphere when existing beliefs do not cohere with, or are unable to make sense of, some stimulus. Personal, reflective *exploration* of the cause of, and possible solutions to, the challenge to existing meaning-making schemes then ensues. *Integration* of these solutions, these new ways of knowing, proceeds, again in a critically reflective manner. Finally, the learner achieves *resolution* of the original cognitive challenge as the new meaning-making scheme is applied and tested in the public sphere. In practice, learners rarely proceed to the higher level of integration and even less so resolution (Archibald, 2013; Goda & Yamada, 2013; Hosler & Arend, 2013; Lee, 2014; Oskoz, 2013; Richardson, Sadaf, & Ertmer, 2013; Stein & Wanstreet, 2013). So, even while the four-step Practical Inquiry shapes the cognitive presence construct, in the study of cognitive presence it is practically important to distinguish between each level.

Successful navigation through this process of constructing personal meaning and confirming public knowledge requires that learners engage in shared metacognition (Garrison, 2016). Garrison and Akyol (2013) identified three functions of metacognition: *knowledge* of cognition, *monitoring* of cognition, and *regulation* of cognition. Knowledge of cognition is a basic understanding of the learning process. Monitoring of cognition is active reflection on the learning process. Regulation of cognition is the enactment of strategies to direct the learning process toward meaningful outcomes.

Ultimately, engagement in metacognition allows learners to make more symmetrical judgements about self-knowledge and the knowledge of others (Brycz, 2014), thus contributing to the achievement of the intended collaborative-constructivist learning outcomes within a community of inquiry (Rubin & Fernandes, 2013). However, for learners to engage in this process of critical assessment and regulation of their own and others' cognition, educators must purposefully steer the process (Wittenbols, 2016). Gašević, Adesope, Joksimović, and Kovanović (2015) demonstrated the importance of facilitating the metacognitive processes of learners through incorporation of scaffolding strategies as a primary element of teaching presence in a community of inquiry.

Teaching Presence

Teaching presence is the cornerstone of the actualization of cognitive presence in learners—increasing learners' awareness of, and their responsibility for, their own and others' contributions to the learning process (Garrison & Akyol, 2013). Inasmuch as shared metacognition serves as a guiding process for, and intended outcome of, communities of inquiry, teaching presence is recognized as the most influential and informative of the three presences (Garrison, 2016). The foundational characteristic of teaching presence was highlighted in a study by Hosler

and Arend (2012), which found that teaching presence accounted for 47% of variance in cognitive presence scores.

Teaching presence is organized around three principles—*design*, *facilitation*, and *direction* (Garrison, 2016). Each of these elements supports both social and cognitive presences. *Design* has to do with the creation of communication (social) and a plan to establish critical discourse (cognitive). *Facilitation* is about establishing community (social) and inquiry dynamics (cognitive). *Direction* means sustaining respect and responsibility (social) and inquiry through resolution (cognitive). Just as each subfactor contributes uniquely to the teaching presence construct, practically each subfactor must be thoughtfully considered and intentionally established (Gallego-Arrufat, Gutiérrez-Santiuste, & Campaña-Jiménez, 2015).

It is important to distinguish this component as teach*ing* and not teach*er* presence, with the realization that all learners, and more foundationally the design of the course as a whole and the individual activities therein, are supportive of the learning environment and overall learning outcomes (Garrison, 2017). Underlying this distinction, Preisman (2014) found that student satisfaction and success are best supported through the execution of the essential teaching presence principles, rather than the presence of the teacher as such. Since the construction of personal meaning within a shared cognitive space requires every member of the learning community to take responsibility for and ownership of their own and others' learning, teaching presence is about the distribution of authority and responsibility—for designing, facilitating, and directing the learning process—throughout the community (Garrison, 2013).

Research Questions

Using the confirmatory factor analysis (CFA) and Structural Equation Modeling (SEM) methodologies, the study sought to address three research questions.

RQ1: Will the CoI instrument yield the same factor structure as previous research?

The multifaceted nature of the CoI construct has been well researched, specifically the three-factor structure. However, under each main factor of teaching, social, and cognitive presence, indicators have been consistently organized into three to four subfactors, which have been part of the operational definitions for the presences. This hierarchical structure or relationship has not yet received any attention in community of inquiry research. The current study hypothesizes that the CoI is not only multidimensional but is also a higher order construct. Teaching presence subsumes three subfactors—design and organization, facilitation, and direct instruction; social presence is comprised of three subfactors—affective expression, open communication, and group cohesion; and cognitive presence is built on four subfactors—triggering event, exploration, integration, and resolution. To understand communities of inquiry fully, then, it is critical to understand the contributions and interactions of each of the subfactors.

RQ2: Will the CoI instrument maintain the same factor structure in RQ1 with covariates of gender, ethnicity, age, online course experience, and course discipline?

To answer this question, the study applies the multiple indicators multiple causes (MIMIC) method to examine the essential psychometric property—measurement invariance. MIMIC is appropriate since it requires smaller sample sizes and can examine a larger number of comparison groups more parsimoniously than other methods, such as multiple groups (Brown, 2015).

RQ3: What are the causal relationships among teaching, social, and cognitive presences?

Existing research (Garrison et al., 2010; Shea et al., 2009b) focuses on the predictive relationship of teaching presence on cognitive presence with social presence as a mediator. In a

correlational and regression study, however, Kozan and Richarson (2014) asserted the mediating relationship of cognitive presence. In this study, a series of structural models were tested to investigate causal relationships among the CoI presences.

Methods

Participants and Setting

All students enrolled in at least one course in the spring 2017 term in the online MBA program at a higher education institution in Maryland were invited to participate in the study. Data were gathered from 579 of 908 participants (a 63.8% response rate). Students were emailed an invitation including a summary of the study, a link to the Qualtrics survey, and a statement of informed consent. The survey consisted of three demographic questions, one question about online learning experience, and the CoI survey instrument (34 items). See Table 1 for demographic information.

Table 1
Demographic Information

	N = 579	
	n	**%**
Gender		
Male	331	57.2
Female	246	42.5
Missing	2	0.3
Age		
22–30	170	29.3
31–40	311	53.7
41–62	75	13.0
Missing	23	4.0
Ethnic Background		
African American	67	11.6
American Indian/Alaskan	2	0.3
Asian	126	21.8
Pacific Islander	4	0.7
Other including mixed	55	9.5
White	322	55.6
Missing	3	0.5
# of Online Courses Taken		
1–4 Courses	220	38.0
5–10 Courses	188	32.5
>10 Courses	124	21.4
Missing	47	8.1
*Max = 70		
Course Discipline		
Science	212	36.6
Non-Science	367	63.4

Instrument

The CoI instrument (Arbaugh et al., 2008) measures the interactions between the presences. Even though the instrument has been validated in numerous studies (Bangert, 2009; Carlon et al., 2012; Garrison, Cleveland-Innes, & Fung, 2010; Horzum & Uyanki, 2015; Kozan & Richardson, 2014; Shea, & Bidjerano, 2009a; Yu & Richardson, 2015), Garrison (2017) called for ongoing development and refinement of it.

Presently, the majority of CoI studies focus on confirming the three-factor structure. There is limited research on the 10 subfactors underlying teaching, social, and cognitive presence. Similarly, multiple inter-item error covariances have been found in the CoI instrument (Arbaugh et al., 2008; Diaz, Swan, & Ice, 2010), and Garrison (2017) has called for the refinement of the items along with the creation of an abbreviated instrument.

Additionally, while the effects of demographics and discipline have been noted (Arbaugh, 2013; Arbaugh, Bangert, & Cleveland-Innes, 2010; Garrison et al., 2010; Shea & Bidjerano, 2009a; Wicks, Craft, Mason, Gritter, & Bolding, 2015), more research is needed to understand how covariates such as gender, ethnicity, age, online course experience, and discipline affect the CoI factor structure (Garrison, 2017; Wicks et al., 2015).

Finally, while Garrison et al. (2010), Joksimović et al. (2015), and Shea and Bidjerano (2009b) have confirmed the mediating relationship of social presence with teaching and cognitive presence, Kozan and Richardson (2014) proposed that cognitive presence could be construed as the mediating variable between teaching and social presence, and suggested further research to validate their findings.

Results

The analyses in this study were conducted with Mplus 8.0 (Muthén & Muthén, 2017). Missing data patterns and multivariate normality assumption were examined before CFA and SEM analyses were carried out. Besides the online course experience variable (missing = 8.1%), the maximum missingness (4.0%) of the dataset on all variables was below the 5% cutoff point (Klein, 2015). Furthermore, with a maximum likelihood estimator, Mplus can accommodate up to 50% missing data per variable without compromising the validity of the analyses (Brown, 2015).

Multivariate normality, a critical assumption for SEM analyses, can be difficult to detect. According to Byrne (2011), a violation of this assumption leads to inaccurate results. Maximum Likelihood Robust estimator (maximum likelihood parameter estimates with robust standard errors) in Mplus, also known as MLR estimator, introduced by Satorra and Bentler (1988), incorporates a scaling correction factor and is used to adjust for non-normality. In this study, the scaling correction factor of 1.355 (>1) suggested multivariate non-normality of the data.

To determine the global model fit, the following widely used indexes (Brown, 2015) were adopted: (a) chi-square as an index to test model absolute fit is used in reference with other indexes because of its sensitivity to sample size; (b) comparative fit index (CFI) and Tucker-Lewis Index (TLI) as comparative/incremental fit indices above .90 and .95 indicating acceptable and excellent fit, respectively; (c) root mean square error of approximation (RMSEA) below .08 and .05 indicating acceptable and excellent fit; (d) standardized root mean square residual (SRMR) at .08 and .05 indicating acceptable and excellent fit; and (e) Akaike information criterion (AIC) used to compare model parsimony with non-nested models with lower AIC values indicative of better fit.

CFA Analyses

CFA analyses were conducted to examine the factor structure of the CoI instrument. The initial three-factor model did not fit satisfactorily (CFI = .861; TLI = .851; RMSEA = .073 with 90% CI of .070–.076; and SRMR = .067). A 10-factor model was fitted and resulted in improved fit (CFI = .929; TLI = .918; RMSEA = .054 with 90% CI of .051–.058; and SRMR = .044). Model modification indexes, factor loadings, *R*-square and normalized residual variances were reviewed and indicated that the model fit could be further improved.

As a result, an item in the teaching presence subscale, "T4: The instructor clearly communicated important due dates/time frames for learning activities," was eliminated due to much lower factor loading (.494) compared with other indicators and high residual variance (.756). Also, the descriptive statistics of the item revealed much weaker correlations with two other congeneric items (.392 and .421). In addition, one item in the social presence subscale, "S9: Online discussions help me to develop a sense of collaboration," and an item in the cognitive presence subscale, "C6: Online discussions were valuable in helping me appreciate different perspectives," were also removed due to cross-loadings on multiple subfactors. Item S9 had almost equal factor loadings on both the *affective expression* and *open communication* subfactors; and Item C6 loaded significantly on the *affective expression* and *group cohesion* subfactors of the social presence subscale. Furthermore, two sets of measurement error covariances were also incorporated into the final model. The final 10-factor CFA model (M3) achieved excellent model fit (see Table 2).

Table 2.
Results of Model Fitting for CFA, MIMIC, and SEM Models

Model	Chi-Square/DF	P-value	CFI/TLI	RMSEA	SRMR	AIC
M1: 3-factor CFA	2134.022/524	.0000	.861/.851	.073 (.070–.076)	.067	43367.690
M2: 10-factor CFA	1304.153/482	.0000	.929/.918	.054 (.051–.058)	.044	42179.316
M3: 10-Factor CFA Final	792.817/387	.0000	.962/.954	.043 (.038–.047)	.036	37732.687
M4: Higher-Order 3-Factor	901.742/419	.0000	.954/.949	.045 (.041–.049)	.052	37832.848
M5: MIMIC Model	1096.400/559	.0000	.950/.945	.043 (.039–.047)	.047	34091.329
M6: SEM Models	901.742/419	.0000	.954/.949	.045 (.041–.049)	.052	37832.848

While all 10 factors correlated strongly with each other, further examination revealed three concentrated clusters of significantly high correlations. Correlations between the design and organization, facilitation, and direct instruction factors ranged from .827 to .975; correlations between the affective expression, open communication, and group cohesion factors ranged from .644 to .877; and correlations between the triggering events, exploration, integration, and resolution factors ranged from .761 to .921 (see Table 3). This pattern conforms to the CoI conceptual framework and suggested a higher-order factor structure should be explored.

Table 3.
Correlations of CFA 10-Factor Model

	2	3	4	5	6	7	8	9	10
1: Design & organization	.869	.827	.403	.405	.389	.687	.577	.711	.652
2: Facilitation		.975	.569	.435	.467	.768	.652	.807	.744
3: Direct instruction			.653	.482	.502	.804	.722	.840	.782
4: Affective expression				.644	.687	.678	.620	.665	.587
5: Open communication					.877	.564	.548	.567	.506
6: Group cohesion						.574	.544	.694	.493
7. Triggering event							.844	.921	.835
8: Exploration								.881	.761
9: Integration									.848
10: Resolution									

Subsequently, a higher order three-factor model (M4) was fitted and achieved excellent fit (CFI = .953; TLI = .948; RMSEA = .044 with 90% CI of .040–.048; and SRMR = .042). Compared with the 10-factor model, this higher order model is more parsimonious (Δdf = 32) and theoretically more interpretable. Therefore, M4 was accepted as the final measurement model. The final instrument (31 items) achieved a high reliability (Cronbach's alpha = .968); with the teaching, social, and, cognitive presence subscales yielding high reliability of .956, .893, and .958, respectively.

MIMIC Model

To examine the measurement invariance of the model, the study tested and analyzed how well the final measurement model (M4) would hold when five covariates of age, gender, ethnicity, online course experience, and course discipline were present. The model (M5) demonstrated an excellent overall fit (see Table 2). Measurement invariance was observed for all covariates, with a few exceptions. Ethnicity had significant positive effects on teaching presence (.119, p = .008) and cognitive presence (.151, p = .000). Discipline had negative effects on all three presences, but a significant effect was found only on social presence (-.127, p = .010). Online experience had a significant positive effect on social presence (.132, p = .005). Additionally, age had a significant positive effect on cognitive presence (.120, p = .009). Gender was the only covariate that achieved measurement invariance across all presences. See Table 4 for results of the MIMIC model.

Table 4.

MIMIC Model: Covariate Effects on Latent Factors

Covariates	**Latent Variables**		
	Teaching Presence	Social Presence	Cognitive Presence
Age	.094 (.036)	.069 (.147)	.120 (.009*)
Ethnicity	.119 (.008*)	.039 (.432)	.151 (.000*)
Gender	.091 (.033)	-.079 (.096)	.079 (.071)
Discipline	-.106 (.021)	-.127 (.010*)	-.102 (.025)
Online experience	.043 (.303)	.132 (.005*)	.068 (.120)

*Indicates statistically significant effects at the level of .01.

Structural Models

To investigate the causal relationships of the three presences, three-structure models were fitted based on prior research. As equivalent models (Kline, 2016), all three structural models presented share the same excellent fit (see M6 in Table 2.).

Model A tested the predictive relationship of teaching presence on cognitive presence, with social presence as the mediator (see Figure 1). This model confirmed the results of previous studies (Garrison et al., 2010; Joksimović et al., 2015; Shea & Bidjerano, 2009b): Teaching presence had statistically significant predictive effects on cognitive presence (.651) and social presence (.555). Additionally, the mediating effect of social presence was lower but still statistically significant (.333). The resultant total effect of teaching presence on cognitive presence was .836.

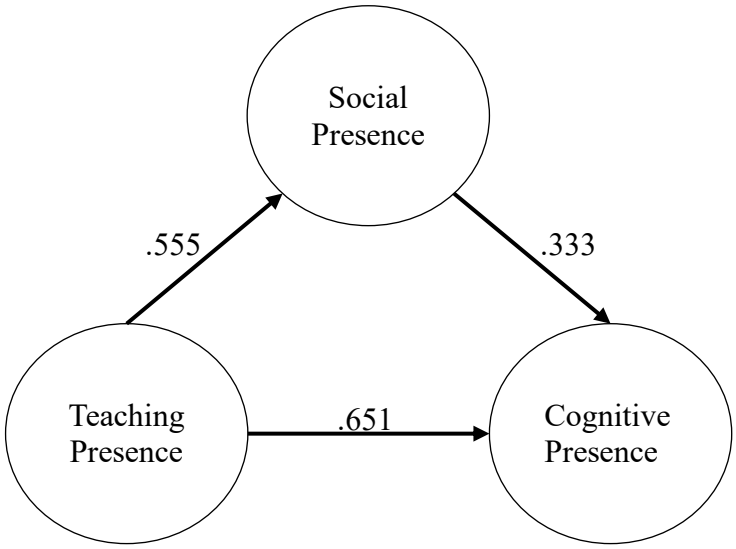

Figure 1. Model A: Social presence as the mediator between teaching and cognitive presence.

Model B (Figure 2) was based on the result of the correlational study by Kozan and Richardson (2014), which contended the mediating effect of cognitive presence. Teaching presence (.836) and cognitive presence (.766) had statistically significant predictive effects on social presence. However, with cognitive presence mediating the relationship, the predicative effect of teaching presence on social presence diminished (-.011, p = .895). The result suggests that when cognitive presence is controlled for, the predictive relationship of teaching presence on social presence disappears.

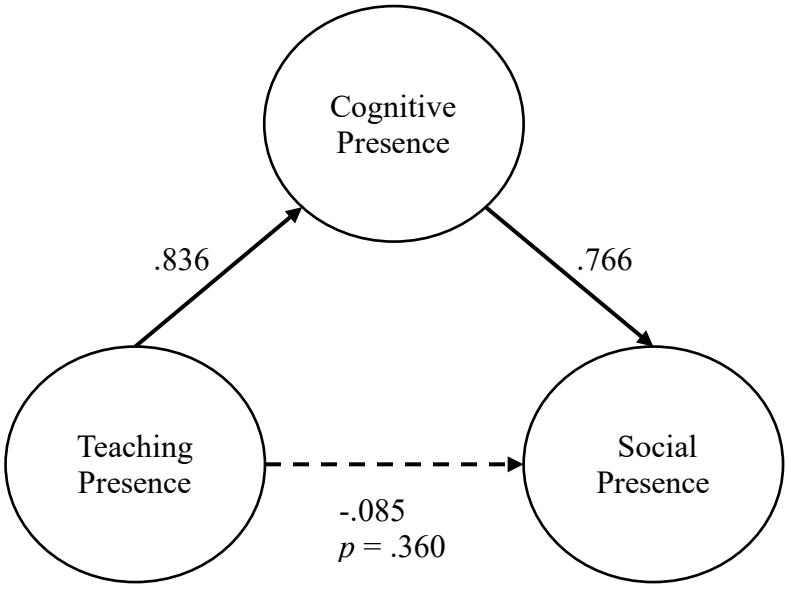

Figure 2. Model B: Cognitive presence as the mediator between teaching and social presence.

To build upon the results of Model B, a final structural model, Model C, had social presence as the predictor and cognitive presence as the mediating variable (see Figure 3). The results indicated that social presence had a statistically significant positive effect on cognitive presence (.767), and cognitive presence had a statistically significant positive effect on teaching presence (.845). However, social presence had a nonsignificant negative effect on teaching presence (-.008 p = .894).

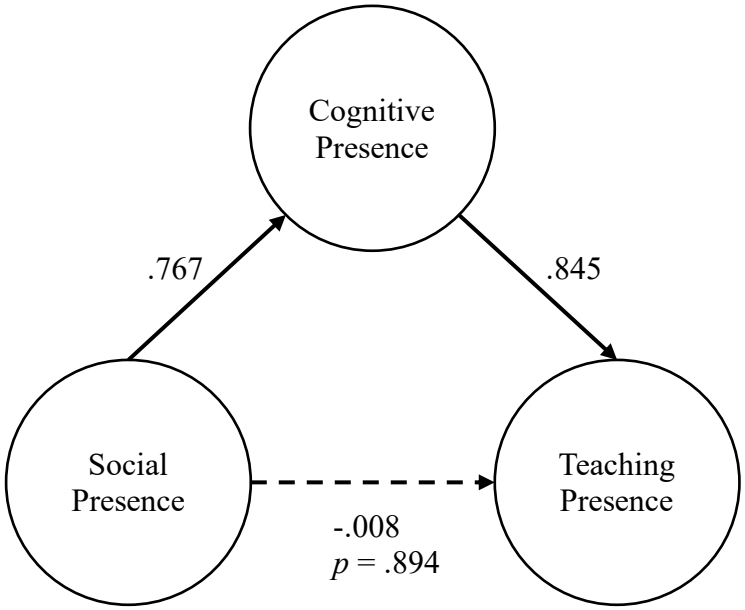

Figure 3. Model C: Social presence as the predictor and teaching presence as response variable.

Discussion

The purpose of this research was to reevaluate the construct validity of the CoI scale through a different lens, by introducing a hierarchical structure that corresponds to the construct operationalization of three presences by Garrison (2017), and further to confirm and rethink the causal relationships among the presences.

Construct Validity & Other Psychometric Implications

Since both the 10-factor model and three-factor higher order model fit much better than the often accepted and tested first-order three-factor model, it suggests that teaching, social, and cognitive presence are each multidimensional and hierarchical, and are best studied as such. The procedure of establishing sound factor structure before testing hierarchical relationship conforms to the typical psychometric research practice suggested by Brown (2015).

Two levels of estimation bias emerge as a consequence of ignoring the multidimensional and hierarchical nature of the constructs. At the item level, when the measurement model does not achieve satisfactory fit, the factor structure becomes unclear, and congeneric items should not be considered equally weighted or tau equivalent. This increases estimation bias when combining these items across factors to form a summated scale. At the subconstruct level, it entails substantial estimation bias to assume each subconstruct is equally weighted under higher order constructs. In the CoI measurement framework, a first-order three-factor measurement model essentially ignores the 10 subfactors, and in turn, might lead to inaccurate results. On the other hand, accounting for

the 10 subfactors offers important insights as researchers learn about the contribution of each subfactor to the higher order construct.

Specifically, in this study, the social presence subscale, in comparison with the teaching and cognitive presence subscales, was found to be significantly less well-defined, as indicated by the lack of clean factor structures, with numerous items cross-loading equally strongly on multiple subfactors. The deleted item, S9, demonstrated equally strong loadings on all subfactors under social presence. In addition, S7 also cross-loaded on the open communication subfactor, further indicating that open communication and group cohesion factors lack divergent validity and may potentially be combined, thus lending support to the proposal by Kreijans, Van Acker, Vermeulen, and Van Buren (2014) to parse social presence into two distinct elements. The removal of Item T4 from the teaching presence subscale and Item C6 from the cognitive presence subscale further demonstrated the value of considering the contribution of specific items and the subfactors more generally. As called for by Garrison (2017), this inclusion of subfactors and consideration of individual items therein will allow for the production of an abbreviated instrument with higher content validity through the elimination of ambiguous and overlapping items.

While this study established the divergent validity of the three traditional factors—teaching, social, and cognitive presences—the subfactors underlying each presence did not demonstrate clear divergent validity. Brown (2015) argued that factor correlations above .80 implied poor divergent validity. The facilitation and direction subfactors in teaching presence and triggering event and integration subfactors of cognitive presence were extremely highly correlated, well above .80 (.975 and .921, respectively), suggesting that they might not be sufficiently divergent. Further research should continue to parse each item, each subfactor, and the factors more generally to see how the CoI survey might be further refined in these directions.

Measurement Invariance

This study provides additional insights into the interactions of typical covariates with community of inquiry scores. First, this study adds confirmation to research on the predictive effects of discipline on community of inquiry scores (Arbaugh, 2013; Arbaugh et al., 2010; Garrison et al., 2010; Shea & Bidjerano, 2009a; Wicks et al., 2015). Specifically, this study found that social presence was negatively affected by the "hardness" (i.e., increased objectivity of content knowledge) of the discipline. As such, this study reinforces the idea that a community of inquiry is best supported in educative spaces where cognitive challenges can be explored and meaning co-constructed, rather than in spaces where meaning is *transmitted to* more than it is *transformed by* learners (Garrison, 2016). Second, this study found that ethnicity has a significant effect on both teaching and cognitive presence. While Vladimirschi (2013) has noted the influence of culture on communities of inquiry, these results are difficult to interpret in any meaningful way, as ethnicity is not a continuous variable. Further research should also be given to understanding the interaction of age and cognitive presence, and online experience and social presence, each of which was shown to be significant in this study. Since the MIMIC approach of examining measurement invariance is limited only to factor means, more stringent constraints, such as equal factor loadings and equal error variances, were not tested. Nevertheless, the results pointed out that additional effort is warranted to further refine the CoI instrument.

Causal Relationships of Presences

In testing the casual relationships of presences, this study presented results from several equivalent models to confirm with previous research. As Kline (2015) suggested, it would be impossible to derive a preferred model with global model-fit indices as criteria because the model-fitting indices for all equivalent models are the same. Hence, the preferred models should be judged

on theoretical and conceptual grounds. Then, and only then, can the factor loadings be interpreted to infer the causal relationships.

As originally proposed and subsequently studied, within a community of inquiry, teaching presence predicts cognitive presence through the mediation of social presence. This study, however, adds support to the suggestion by Kozan and Richardson (2014) that it is possible to understand cognitive presence as mediating teaching and social presence (Garrison et al., 2010; Joksimović et al., 2015; Shea & Bidjerano, 2009b). In this view, social presence is a product rather than a predictor of cognitive presence. Garrison's (2017) suggestion that social presence emerges just as "participants identify first with academic goals" (p. 30) ultimately supports the view of cognitive presence informing social presence. Accordingly, social presence results from learners' commitment to a common academic goal, based on an agreement to explore ideas and perspectives collaboratively (Winne, 2015; Zhao, Sullivan, & Mellenius, 2014).

At the same time, it makes little conceptual sense to view social presence as the intended outcome of a community of inquiry. The ultimate purpose of an educative environment in general, and a community of inquiry in particular, is cognitive engagement. As Garrison (2017) put it, "[s]tudents join educational environments for academic purposes and not for social reasons" (p. 45). So, while social presence may indeed result from a community engaged in open and critical discourse, social presence cannot be viewed as the ultimate or intended result of that engagement. To this understanding—and in line with the manner in which the CoI framework was conceived and conceptualized—social presence can never be the response variable, though its fit as either the predictor or mediating variable might still otherwise be open.

The positioning of social presence as the mediating variable is, however, finally anchored upon inspection of the teaching presence construct. The literature on the Community of Inquiry is explicit about the function and purpose of teaching presence. Teaching presence is essentially about the distribution of teaching authority and responsibility throughout the learning community (Garrison, 2017). It is about the decentralization of authority (Vaughn, 2013) and the scaffolding of student engagement in teaching functions (Gallego-Arrufat et al., 2015). Thus, communities of inquiry, through the distribution of teaching authority and responsibility, enable learners to practice (Vaughan, 2013) and become more proficient at leading and engaging in a process of ongoing, shared metacognition (Kovanović et al., 2015; Malmberg et al., 2015), resulting in the construction of more justifiable beliefs in the context of shared knowledge within a community of learners (Lafuente, Remesal, & Valdivia, 2014). This construal of teaching presence positions the teacher within the community, not outside or in front of it.

Despite the conceptual commitment of teaching presence to the distribution of the teaching function throughout the learning community, all 13 of the teach*ing* presence items ask specifically and exclusively about the role of the teach*er*. To wit, 12 of the items begin with the phrase "The instructor," and the one remaining item begins with the phrase "Instructor actions." In this way, the teaching presence subscale, while valid as a scale measuring *some* factor, does not actually measure teaching presence so defined. Thus, as it stands, and insofar as the functions it describes are logically prior to its results (viz., the creation of social and cognitive presences), the teaching presence construct must necessarily serve as the predictor variable. As a result, in its present condition, the framework can only be studied as originally conceptualized—even if there are statistical and conceptual indications that other constructions might be possible or even preferable.

So, while Garrison (2017) called for further refinement of the teaching presence scale, this study demonstrates the need to significantly reconceptualize the teaching presence construct as it is represented and measured in the CoI survey instrument, ensuring that the items reflect and relate

to teaching presence as a distributed rather than centralized function. What is more, if operationalized as theorized, teaching presence could potentially fit any role—predictor, mediator, or outcome—within the framework. Indeed, rightly framed, teaching presence might make the most conceptual sense as the outcome of a community of inquiry—quite in line with Garrison's (2017) work on, and notions of, shared metacognition.

Gašević et al. (2015) demonstrated the positive effects of student-led teaching presence functions (as defined by the CoI survey) on cognitive presence, offering that "integrating externally-facilitated regulation scaffolds into the design component of teaching presence . . . provided students with the opportunities to co-regulate their learning" (p. 62). Taking Garrison's (2017) view that "[e]ducation is a formally constructed type of social learning" (p. 26), then it is indeed the case that "shared metacognition holds promise to understand and support thinking and learning collaboratively" (pp. 62–63). Thus—and as shown by Gašević et al. (2015)—if teaching presence is operationalized in just such a shared and collaborate fashion, and the coregulation of learning is both requisite for, and an intended outcome of, a community of inquiry, its fit as the outcome variable within a community of inquiry makes considerable conceptual sense. Of course, more research is first needed to remake the teaching presence scale, tying it more tightly to its conceptual mooring. This part of the project has the further potential to address the suggestions by Shea et al. (2014) to account for the presence of the learner within the CoI framework, while at the same time heeding Garrison's (2017) concern with keeping the theory grounded in collaborative constructivism. Once the teaching presence scale is revised, research can then set about remaking the model however makes best statistical and conceptual sense. In all, this line of inquiry will significantly affect all future research on the CoI framework.

Conclusions

Overall, this study adds new insight into the psychometric properties of the CoI instrument and casual relationship among the presences, allowing for new research opportunities in these directions. More specifically, this study provides at least three important insights for additional use and study of the CoI framework and instrument. First, a three-factor higher order model is superior to the traditional three-factor model typically used. Future studies should utilize the three-factor higher order model, which will produce a more refined understanding of the interaction among the three primary factors and their associated 10-subfactors. Findings from these studies will provide insights on designing specific course elements to achieve the most meaningful student learning experiences and outcomes. Second, future studies should seek to uncover how age, ethnicity, and online experience affect CoI scores and possibly also the configuration of the instrument. Finally, this study demonstrates the need to revisit the entire teaching presence scale as it is represented in the CoI instrument, and more specifically to revise the teaching presence items to reflect the construct's commitment to the distribution of teaching authority and responsibility. Work in this area will significantly inform both how the community of inquiry is understood and more importantly how it is operationalized in classrooms.

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Exploring the Relationship of Background, Technology and Motivation Variables to Business School Transfer Intent for Two Mixed Course Format Business Undergraduate Samples

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Abstract
Business students are increasingly taking online courses to supplement their more traditional face-to-face (F2F) course-delivered education. This study explored the relationship of demographic, curricula, and motivation variables on business school transfer intent for a mixed course delivery sample of undergraduate business students taking online classes. Two separate samples of students taking both online and F2F courses (i.e., mixed course delivery format) filled out an online survey in the fall 2016 and spring 2017 semesters. Intent to transfer business schools was lower for both samples. Results showed that being male, perceived favorability of online courses, and lower institutional commitment were significant correlates of intent to transfer across both samples. This outcome variable, intent to transfer, should be added to the research agenda for ongoing efforts across all universities and colleges when testing the impact of online education.

Keywords: intent to transfer, online courses, mixed course delivery format, institutional commitment

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Exploring the Relationship of Demographic, Curricula, and Motivation Variables to Business School Transfer Intent for Two Mixed Course Format Business Undergraduate Samples

Using U.S. Department of Education (DOE) figures, Jain (2015) found that the percentage of undergraduate students taking at least one online course increased from 15.6% to 26.6%, from 2003 to 2013. Increasingly, many universities and colleges are viewing online education as a critical component of their enrollment strategic plan to accommodate business undergraduate students' needs (Comer, Lenaghan, & Sengupta, 2015). In addition to full-time online undergraduate Bachelor of Business Administration (BBA) programs, undergraduate business students are increasingly taking online courses to supplement their more traditional face-to-face (F2F) course-delivered education, based on factors including flexible scheduling (Daymont, Blau,

& Campbell, 2011), and convenience (Cochran, Baker, Benson, & Rhea, 2016), as well as motivation-related factors, such as intrinsic motivation (Eom & Ashill, 2016) and self-discipline (Comer et al., 2015). Students who take both F2F and online classes in a semester represent a "mixed course delivery format" sample (Blau, Drennan, Hochner, & Kapanjie, 2016; Blau, Pred, Drennan, & Kapanjie, 2016). Given such positive features of online classes, would taking online classes affect the likelihood of a business undergraduate wanting to transfer to another business school? The goal of this study was to explore the relationship of demographic, curricula, and motivation variables to transfer intent for a mixed course sample of undergraduate business students taking online classes.

Review of Related Literature

Many College Students Transfer

There is a general website for college transfer information (www.collegetransfer.net, n.d.) where all types of students (e.g., community college, four-year, international students) can explore different transfer issues (e.g., transferring credits or choosing a college that best fits with one's major). Tracking students who first enrolled in college in 2008, the National Student Clearinghouse Research Center found that over 37% percent of college students transfer at least once within six years (Fain, 2015). Transfers can be different types, not just from a two-year community college to a four-year college but also from a four-year college to another four-year college or from a four-year college back to a community college. Research by Cabrera, Burkum, and La Nasa (2005) found that that a student's probability of successfully transferring from a two-year to four-year institution improved based on the following: higher socioeconomic status; encouragement (especially from friends); higher high school academic preparation; higher college aspirations; higher grade point average (GPA) achieved in the two-year institution; and most importantly, taking at least two science and two math classes in community college. Community college students who took two science classes were 33% more likely to successfully transfer to a four-year institution compared to students who took no science classes. For math, students who took two math courses were 19% more likely to successfully transfer. Reinforcing the importance of higher academic preparation in high school, Horn, Kojaku, and Carroll (2001) found that more rigorous high school curricula (including precalculus or higher and at least one advanced placement course or test) enhanced successful student transfer to a four-year institution.

Students transferring to another institution represents a form of "turnover" that colleges and universities try to minimize because of the loss in revenue (Raisman, 2016). Using a sample of first-to-second-year undergraduates, Herzog (2005) found that academically well-prepared freshmen with unmet financial need were more likely to transfer to another four-year institution. This study specifically focused on the transfer intent of business students taking online courses; general background research on college persistence toward graduating and related outcomes was also reviewed.

Research on Persistence and Related Student Outcomes

Research (Tinto, 1997) has demonstrated the importance of motivational variables (e.g., goal commitment and institutional commitment) and intention to persist as the most proximal factors impacting student persistence toward graduation. Earlier research using a sample of nontraditional students (e.g., commuter, part-time) reinforced the importance of commitment for student persistence (Metzner & Bean, 1987). Later inferential modeling research (Robbins et al. 2004; Robbins, Allen, Casillas, Peterson, & Le, 2006) investigated the relationship of

demographics (e.g., race, gender, and socioeconomic status) and background variables (e.g., GPA, transfer status) on college student persistence. This research found, consistent with earlier studies of attrition and persistence (Metzner & Bean, 1987; Tinto, 1997), that such demographics and background variables, although useful, have not accounted for as much variance in persistence toward graduation as psychosocial and study-skill factors (e.g., institutional commitment, social involvement, and academic-related skills). Institutional commitment or a student feeling that he or she is attending the right institution is a particularly important antecedent of persistence for general student samples (Davidson, Beck, & Milligan, 2009). A more recent model of student persistence shows demographic variables as a more distal (i.e., less direct) predictor set of persistence compared to more proximal variable sets, such as individual student experiences (Reason, 2009a). However, prior research also noted that given the changing demographics of the undergraduate student population, it is still important to at least control for the potential relationships of demographic and background variables on student persistence or related outcomes (Reason, 2009b). For example, Love (2013) found that transfer students had lower institutional commitment than nontransfer students. Focusing specifically on business undergraduates, Mangum, Baugher, Winch, and Varanelli (2005) found that three factors showed a significant correlation of second-semester freshmen to their subsequent dropout from a business school: lower first-semester GPA, lower first-semester teaching course evaluations, and greater financial difficulty perceptions.

There has been research using samples of undergraduates taking online courses. Shea and Bidjerano (2014) found that, after controlling for demographic characteristics (e.g., gender, age, race), community college students who had taken some of their initial classes online had a significantly better chance of graduating than their classroom-only counterparts. Beck and Milligan (2014) found that online students' institutional commitment was positively related to their interaction with the school's academic environment (e.g., graduation goal, academic integration, and degree commitment). Based on a mixed course delivery format sample of 263 business undergraduates taking at least one online or hybrid (mix of online and F2F delivery) course, Blau, Drennan, et al. (2016) investigated correlates of perceived timely graduation (i.e., online/hybrid courses helping students to graduate sooner). They found that a technology variable (i.e., perceived ease of the use), student motivation, and perceived learning were significant positive correlates for explaining timely graduation. Twenty-five percent of the variance in timely graduation was accounted for, and these three correlates accounted for 19% of this 25%.

Control Variables and Technology Variables with Prior Online Samples

In addition to the above-cited studies, prior research using perceived learning in online courses as the outcome variable (e.g., Arbaugh, 2005) has worked with three general independent variable sets: (a) demographic (e.g., age, gender), (b) technologically related (e.g., ease of use, experience in online courses), and (c) pedagogical (e.g., perceived course interaction). Blau, Pred, et al. (2016) found differences in the perceptions of perceived favorability of online courses for quantitative versus qualitative business majors. This suggests that quantitative/qualitative major should be controlled for. Endres, Chowdhury, and Frye (2009) found that MBA students who were more satisfied with their online courses were more likely to recommend the course, faculty, and university to others. Barnard, Osland Paton, and Rose (2007) found that undergraduates who had better perceptions of online course communications and collaboration were more likely to recommend their academic program to another student. Collectively, the results of these two studies suggest that students with greater satisfaction with online courses were more likely to recommend their university or academic program. Students who are more likely to recommend their university or academic program should have lower intent to transfer (Moldoff, n.d.). This suggests that if students are more likely to recommend current business school online courses, this

should reduce their intent to transfer. Given the previously noted lack of specific prior research focusing on intent to transfer as the dependent variable, the general research question asked was the following:

> What is the relationship of demographic, curricula, and motivation variables to students' intent to transfer from their current business school?

Methods

Sample and Procedure

Near the end of the fall semester of 2016, all business undergraduates who enrolled in at least one synchronous online course or hybrid course (N = 3,776) were contacted by school email address and asked to voluntarily fill out an online survey. Student enrollment in either an online or hybrid course was the initial identifier for contacting participants. The University Institutional Review Board approved data collection. The business school (Business School X) is part of a large urban state-supported Tier 1 Association to Advance Collegiate Schools of Business (AACSB) accredited university located in the Mid-Atlantic region of the United States. As an incentive to voluntarily fill out the online survey, two prizes were offered—an Apple or Android watch—with the winners to be chosen by random number lottery. Prior research has suggested that incentives can improve online survey response rates (Fan & Yan, 2010). A student could fill out a survey for each online or hybrid course taken in the fall, and the student's name was entered in the lottery for each completed survey. Only respondents who completed a survey were eligible to win. Multiple responses from the same student were deleted during the data analysis as explained below. One survey reminder was sent one week after the initial invite.

Seven hundred and ten (N = 710) students at least partially filled out a survey. Ninety-two percent of the respondents were full-time students (taking at least 12 credits/semester). This represents a 19% response rate (710/3,776). While this may be a less-than-desired response rate, literature has shown that a lower rate may not be evidence of survey bias (Rindfuss, Choe, Tsuya, Bumpass, & Tamaki, 2015). For the fall semester, the breakdown of courses taken by participating undergraduates was one (52%) or two (15%) online courses, along with four (38%) or five (34%) traditional F2F classes. Very few students took hybrid classes due to limited offerings relative to the increased number of online course offerings. Thus, respondents were collectively a "mixed course format" sample (i.e., had taken a general mix of online and F2F classes).

The same general process was followed for collecting spring 2017 data on a separate sample of business undergraduate students who enrolled in at least one online or hybrid course (N = 3,543). Eight hundred and twenty-four (N = 824) students at least partially filled out a survey. Ninety-three percent of the respondents were full-time students. This represents a 23% response rate (824/3,543). The number of online (one course: 49%; two courses: 13%) and traditional F2F courses (four courses: 35%; five courses: 30%) being taken by the spring sample were consistent with the fall mixed course format sample. Demographics for both complete-data samples are reported below.

Measures

Demographic variables. Six variables were measured: gender, ethnic background, commuter status, currently working, transfer status, and age. *Gender* was indicated as 0 = male, 1 = female. *Ethnic background* was indicated as 1= African American, 2 = Asian, 3 = Caucasian, 4 = Hispanic or Latino, and 5 = other (e.g., American Indian, mixed, biracial). *Commuter status* was

indicated as 0 = no, 1 = yes. *Currently working* was indicated as 0 = no, 1 = yes. *Transfer status* was measured as 1 = no transfer (started as first-semester freshman), 2 = transferred in as freshman, 3 = transferred in as sophomore, 4 = transferred as a junior, and 5 = transferred as a senior. *Age* was measured in yearly response categories, from 1 = 18 years old or less, 2 = 19, 3 = 20 … to 34 = 51 or older. This response category mean will be converted to years when reported in the text for easier interpretation.

Curricula-related. Four variables were measured: GPA, number of prior online/hybrid courses taken, quantitative/qualitative major, and perceived favorability of online/hybrid course (PFoOC). *GPA* (cumulative) was measured in incremental self-report response categories increasing by one for every tenth-point increase in GP, where 1 = less than 2.0, 2 = 2.0, 3 = 2.1, 4 = 2.2, … to 22 = 4.0. This response category mean will be converted to a 4.0 scale when reported in the text for easier interpretation. *Number of prior online* and *hybrid courses taken* were separately measured from 0 to 9 or more. There was a big discrepancy between these measures. For the *number of prior online courses taken*, the fall (M = 7.03, SD = 2.09) and spring sample means (M = 7.36, SD = 2.36) were much higher than for the *number of prior hybrid courses taken*, reported by the fall (M = 1.89, SD = 1.50) and spring sample means (M = 1.92, SD = 1.58). Therefore, these separate items were combined to indicate the number of prior online and hybrid taken (*prior online/hybrid courses*). *Quantitative/qualitative major* was measured by asking "which category below best describes your primary major?" Respondents were asked to choose what they felt was their primary major if they had a double major. *Quantitative* (coded 0 for analyses) consisted of Finance, Accounting, Risk Management & Insurance, Management Information Systems, Actuarial Science, Economics, or Statistics, and *qualitative* (coded 1 for analyses) consisted of Marketing, Human Resource Management, International Business, Entrepreneurship, Legal Studies, and Real Estate. An independent cross-disciplinary business faculty committee, when suggesting general grading guidelines, had established this quantitative–qualitative breakdown. *Perceived favorability of online/hybrid courses (PFoOC)* was measured using the following four items: (1) "compared to face-to-face lectures, the high-quality video lectures were," (2) "compared to face-to-face class discussions, the live online WebEx sessions were," (3) "compared to face-to-face class participation, the online discussion boards were," and (4) "overall compared to face-to-face classes, the online course was." Responses were made using the following scale: 1 = *very inferior* to 7 = *very superior*. A *not applicable* response was also included for each item, and was coded as missing data. When aggregated into a scale, consistent with prior research (Blau, Pred, et al. 2016), most of the missing data across both samples came from using this scale. Cronbach alphas for this scale were .78 and .76 for the fall and spring samples. These scale reliabilities were consistent with Blau, Pred, et al. (2016).

Motivation-related. Two variables were measured: *willingness to recommend online courses* and *institutional commitment*. Unless otherwise noted, all multi-item measures used a 7-point response scale, where 1 = *strongly disagree* to 7 = *strongly agree*. *Willingness to recommend online courses* was measured using the following two items: "I would recommend this online/hybrid course to other students," and "I would recommend taking other business school online/hybrid courses in general to students." Cronbach's alpha for this two-item scale was .88 for the fall sample and .87 for the spring sample. *Institutional commitment* was also measured using two items: "I am sure University X is the right place for me," and "I am confident that I made the right decision to attend University X." These two items were adapted from Davidson et al. (2009). Cronbach's alpha for this two-item scale was .95 for the fall sample and .94 for the spring sample.

Intent to transfer. Given the lack of prior research using a multi-item scale specifically focusing on undergraduate intent to transfer, a two-item study-specific measure was used. The two

items were: "I considered transferring from Business School X to another university's business school," and "I looked at other business schools while attending Business School X with the intent of transferring." Cronbach's alpha for this two-item scale was .91 for the fall sample and .90 for the spring sample.

Data Analyses

All data analyses were done using SPSS-PC (SPSS, 2013). Using listwise deletion to test the hypotheses, missing data across all studied variables ultimately reduced the complete-data sample size to $N = 376$, or 53% (376/710), for the fall sample and $N = 435$, or 53% (435/824), for the spring sample. This deletion also included multiple submissions from the same person in each sample to eliminate autocorrelation as a bias (Stevens, 1996). After deleting multiple submissions, inspection of the fall data sets showed minimal mean (M) differences between complete-data and partial-data samples.

Means, standard deviations, and correlations between continuous variables are reported. Scale means for multi-item variables were divided by the number of items so that the mean is based on the response scale. The research question, using intent to transfer business school as the dependent variable, was tested using hierarchical regression analyses. Care was taken to avoid several errors associated with hierarchical/stepwise regression: neglect of a theoretical basis for using, violation of causal priority, and misinterpretation of results (Petrocelli, 2003). Based on general prior theory and research (Arbaugh, 2005; Reason, 2009a), the demographic variables were entered as Step 1 in the hierarchical regression analyses, followed by the course- or technology-related variables in Step 2, and finally the motivation-related variables in Step 3. Ethnic background (0 = Caucasian, 1 = Non-Caucasian) and transfer status (0 = no, 1 = yes) were each recoded into binary measures to allow straightforward entry (Stevens, 1996) as demographic variables for Step 1 in the regression analyses. Regression models were checked for outliers (there was one only outlier in the spring sample with a residual of at least three standard deviations). This outlier was deleted (Stevens, 1996). Thus, the sample sizes for the regression analyses were $n = 376$ (fall) and $n = 434$ (spring). For the regression analyses, it was determined that the assumptions of no multicollinearity, linearity, homoscedasticity and normally distributed errors were satisfactorily met (Stevens, 1996). Collectively, support for these assumptions can give the reader more confidence in the study findings (SPSS, 2013). Only the final regression models for the fall and spring samples are presented below.

Results

Sample Characteristics

Table 1 shows the frequency and percentage statistics for the six noncontinuous variables for each complete-data sample: $n = 376$ (fall) and $n = 435$ (spring). Results show a general consistency across both samples on these six variables. There was a slight flip from a male (fall 2016) to female (spring 2017) majority, but otherwise the majority of respondents across each sample were Caucasian, entered as freshmen, lived on campus or within walking distance, were currently working, and were quantitative majors. By comparison, for the fall of 2016, based on 28,203 matriculated undergraduates at the university, 53% were female and 57% were Caucasian.

Table 1.
Frequencies and Percentages for Fall 2016 and Spring 2017 Complete-Data Noncontinuous Variables

	Fall 2016 (n = 376)		Spring 2017 (n = 435)	
Variable	n	%	n	%
Gender				
Male	201	53	201	46
Female	175	47	234	54
Ethnic Background				
Caucasian	219	58	224	52
Asian	85	23	112	26
African American	33	9	48	11
Hispanic or Latino	15	4	14	3
Other (e.g., American Indian, mixed)	24	6	37	8
Transfer Status				
Entered as first semester freshman	202	54	229	53
Transferred in as a freshman	16	4	23	5
Transferred in as a sophomore	77	21	97	22
Transferred in as a junior	68	18	78	18
Transferred in as a senior	13	3	8	2
Commuter Status				
On campus/in walking distance	222	59	248	57
Commuter	154	41	187	43
Currently working				
No	156	42	171	39
Yes	220	58	264	61
General Type of Major				
Quantitative (e.g., Finance)	196	52	238	55
Qualitative (e.g., Marketing)	180	48	197	45

General Results

Table 2 shows the means, standard deviations, and correlations for the seven continuous variables for the fall 2016 and spring 2017 complete-data samples. Overall, there is general consistency in the mean levels of these variables between the samples. Highlighting several variable results, based on the 7-point response scale, the overall means for intent to transfer business school are low for the fall of 2016, M = 2.67, SD = 1.89, and spring of 2017, M = 2.86, SD = 1.95. The means for institutional commitment are high in fall 2016, M = 6.08, SD = 1.17, and spring 2017, M = 6.05, SD = 1.16. Looking at the correlational results, perceived favorability of online courses had a consistent positive relationship to intent to transfer for both the fall of 2016, $r(374) = .19$, $p < .01$, and spring 2017, $r(433) = .14$, $p < .01$ samples. Institutional commitment

had a consistent negative relationship to intent to transfer for both the fall 2016, $r(374) = -.36$, $p < .01$, and spring 2017, $r(433) = -.35$, $p < .01$ samples. Looking at intercorrelations between independent variables, the strongest fall 2016 sample correlation was between willingness to recommend online courses and institutional commitment, $r(374) = .50$, $p < .01$; while the strongest spring 2017 sample correlation was between perceived favorability of online courses and willingness to recommend online courses, $r(435) = .44$, $p < .01$. These intercorrelations indicate sufficient discriminant validity between independent variables (Stevens, 1996).

Test of Research Question

Using intent to transfer business school as the dependent variable, the final stepwise or hierarchical regression models for the fall 2016 and spring 2017 samples are shown in Table 3. Looking at the fall 2016 sample first, the demographic variable set accounted for a significant 8% amount of variance, $F(6,369) = 5.52$, $p < .01$. The only significant correlate within this set was gender (males higher), $b = -.66$, $t(363) = -3.62$, $p < .01$. For Step 2, when the curricula-related variables set was added, an additional significant 3% of the variance for intent to transfer was accounted for, $F(4,365) = 2.93$, $p = .02$. The only significant correlate within this set was perceived favorability of online courses, $b = .27$, $t(363) = 3.58$, $p < .01$. Finally, in Step 3, the motivation-related variables set accounted for an additional 11% of the variance for intent to transfer, $F(2, 363) = 25.87$, $p < .01$. Within this set, only institutional commitment was a significant correlate, $b = -.58$, $t(363) = -6.39$, $p < .01$. Overall, 22% of the variance in intent to transfer business schools was accounted for, $F(12, 363) = 8.62$, $p < .01$.

Looking at the spring of 2017, the demographic variable set accounted for a significant 6% amount of variance, $F(6,427) = 4.59$, $p < .01$. There were two significant correlates within this set; gender (males higher), $b = -.35$, $t(421) = -2.03$, $p = .02$, and commuter status (noncommuters higher), $b = -.59$, $t(421) = -2.93$, $p < .01$. For Step 2, when the curricula-related variables set was added, an additional significant 3% of the variance for intent to transfer was accounted for, $F(4,423) = 3.58$, $p < .01$. The only significant correlate within this set was perceived favorability of online courses, $b = .30$, $t(421) = 4.09$, $p < .01$. Finally, in Step 3, the motivation-related variables set accounted for an additional 14% of the variance for intent to

transfer, $F(2, 421) = 36.56$, $p < .01$. Within this set, only institutional commitment was a significant correlate, $b = -.66$, $t(421) = -8.37$, $p < .01$. Overall, 23% of the variance in intent to transfer business schools was accounted for, $F(12, 421) = 10.23$, $p < .01$.

Table 2.

Means, Standard Deviations, and Correlations for Continuous Variables for Fall 2016 and Spring 2017 Complete-Data Samples

	Fall 2016 (n = 376)		Spring 2016 (n = 435)								
Measure	*M*	*SD*	*M*	*SD*	1	2	3	4	5	6	7
1. Age[a]	5.35	5.00	5.80	5.34	(---)	-.11*	.31**	.09	.14**	.13**	-.13**
2. Grade Point Average[b]	14.29	4.38	14.35	4.59	-.14**	(---)	-.10*	-.19**	-.03	-.02	-.07
3. Prior Online/Hybrid Courses[c]	9.28	2.87	9.69	3.18	.38**	-.16**	(---)	.15**	.09	.01	-.06
4. Perceived Favorability Online Courses[d]	4.38	1.32	4.40	1.34	.08	-.14*	.12*	(---)	.44**	.17**	.14**
5. Willingness to Recommend Online Courses[d]	5.64	1.38	5.71	1.30	.07	.02	.09	.37**	(---)	.39**	-.05
6. Institutional Commitment[d]	6.08	1.17	6.05	1.16	.06	.07	.02	.05	.50**	(---)	-.35**
7. Intent to Transfer Business School[d]	2.67	1.89	2.86	1.95	-.05	-.02	.01	.19**	-.10*	-.36**	(---)

Note. n = 376 for fall; n = 435 for spring. *p < .05. **p < .01. (two-tail); (---) in the diagonal separates the fall sample (below diagonal) from the spring sample (above the diagonal).

[a]*Age*, 1 = 18 or less to 34 = 51 or older; [b]*Grade Point Average*, 1= less than 2.0 to 22 = 4.0; [c]*Prior Online/Hybrid Courses*, separately measured and then combined, where 0 = 0 to 9 = 9 or more; [d]*Perceived Favorability Online Courses*, *Willingness to Recommend Online Courses*, *Institutional Commitment*, *Intent to Transfer Business School*, 1 = *strongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *neither agree nor disagree*, 5 = *somewhat agree*, 6 = *agree*, 7 = *strongly agree*.

Table 3.

Final Stepwise Regression Models Showing Incremental Effect of Demographic, Curricula-Related, and Motivation-Related Variable Sets for Explaining Intent to Transfer Business School for Fall 2016 and Spring 2017 Samples

	Fall 2016 Intent to Transfer				Spring 2017 Intent to Transfer			
	b	*SE*	R^2	Chg R^2	*b*	*SE*	R^2	Chg R^2
Step 1: Demographic Variables								
Gender[a]	-.66**	.18			-.35*	.17		
Ethnic Background[b]	.33+	.19			.23	.18		
Transfer Status[c]	.28	.20			.35	.20		
Commuter Status[d]	-.30	.21			-.59**	.20		
Currently Working[e]	-.10	.19			-.08	.17		
Age	-.01	.02			-.03	.02		
			.08**				.06**	
Step 2: Curricula-Related Variables								
Grade Point Average	.02	.02			.03	.02		
Prior Online/Hybrid Courses	.01	.03			-.02	.03		
General Type of Major[f]	-.20	.18			-.05	.17		
Perceived Favorability Online Courses	.27**	.08			.30**	.07		
			.11**	.03*			.09**	.03**
Step 3: Motivation-Related Variables								
Willingness to Recommend Online Courses	-.02	.04			-.08	.07		
Institutional Commitment	-.58**	.09			-.66**	.08		
			.22**	.11**			.23**	.14**

Note. Fall 2016, n = 376; spring 2017, n = 434. *b* is unstandardized regression weight, *SE* = standard error; R^2 = variance accounted for; Chg R^2 = change in variance accounted for.

+ p < .10. *p < .05. **p < .01 (two-tail).

[a]Gender (0 = male, 1 = female); [b]Ethnic Background (0 = Caucasian, 1 = Non-Caucasian); Transfer Status[c] (0 = no, 1 = yes); [d]Commuter Status (0 = no, 1 = yes); [e]Currently Working (0 = no, 1 = yes); [f]General Type of Major (0 = Quantitative, 1 = Qualitative).

Discussion

To the authors' knowledge, this is the first study empirically testing correlates of intent to transfer business schools using mixed-course format business undergraduates (i.e., those taking a mix of online and F2F classes). Online courses at business schools continue to grow in popularity (Comer et al., 2015). Beyond full-time online BBA programs, many business undergraduates are increasingly taking online courses to supplement their more traditional F2F-course-delivered education. These students represent a mixed-course format sample. The separate samples studied here consisted of full-time business undergraduates taking at least one online course and primarily F2F courses. By using separate samples rather than combining them, it is possible to validate the results (Stevens, 1996). Perhaps most importantly, based on the 7-point response scale used, the means for intent to transfer business schools were low for both samples (fall 2016, $M = 2.67$; spring 2017, $M = 2.86$). These lower means for transfer intent are important, as colleges and universities try to minimize students transferring to another institution because such turnover results in revenue loss (Raisman, 2016).

Across both samples, being male, reporting higher perceived favorability of online courses, and lower institutional commitment were significantly related to intent to transfer business schools. For the spring 2017 sample only, being a noncommuter was also related to higher intent to transfer. However, this finding was not validated by the fall 2016 sample. For gender, it may be useful for the dean's office to randomly interview in a cost-effective manner (e.g., focus group, by phone) male undergraduates to probe more about whether and why they could have a higher intent to transfer business schools (Cochran et al., 2016). This probing could also be done by the business school advisors, when students have any questions (e.g., course registration issues). A recent report by the National Student Clearinghouse, or NSC (Shapiro, Dundar, Wakhungu, Yuan, & Harrell, 2015), found that overall, female undergraduates had a slightly higher transfer-percentage rate than male (39% versus 37%). It is important to note that this study only measured transfer intent, not actual transfer, so again the dean's office could try to investigate whether males actually transfer more than females. In addition, the dependent variable focused on transfer intent to another business school, not to a different college (e.g., liberal arts, engineering, science and technology) within the same university or a different university.

Perceived favorability of online courses was positively related to intent to transfer to another business school. This suggests that factors associated with online courses, such as

flexible scheduling (Daymont et al., 2011) and convenience (Cochran et al., 2016) may be relevant. As such, if students see online learning in a more favorable light, compared to face-to-face classes, and if they cannot get their course needs met in a timely manner, they may be more likely to explore transferring to another school. Thus, as online learning continues to increase, it seems even more important to monitor whether student course needs are being met. Online degree programs that cohort students can help to increase their academic and social integration, and this is important to student persistence (Lee & Choi, 2011). Cohorting students where feasible into prerequisite-linked individual online courses may also help to increase students' academic and social integration (Beck & Milligan, 2014).

One surprising finding above was that perceived favorability of online courses was also weakly positively correlated with institutional commitment. This finding may be attributed to some students' increased institutional commitment due to satisfaction with flexibility of offerings. As students see more options given to them, they may increase their commitment to the university. This finding, however, should be investigated further.

The strongest correlate, however, across both samples, was institutional commitment, which showed a strong negative relationship to intent to transfer business schools. Prior research has shown that institutional commitment, or a student feeling that they are at the right institution, has a robust effect on general student persistence (Davidson et al., 2009; Robbins et al., 2004) and online student persistence (Beck & Milligan, 2014). Finding ways to continually build student institutional commitment is probably the best preventive measure against transfers. Prior research (Metzner & Bean, 1987; Tinto, 1997) suggests these should include increased social integration (e.g., student group memberships) and academic variables (e.g., good career/academic advising).

Based on student-persistence-related research, there is a rich history of research on significant antecedents of institutional commitment (Beck & Milligan, 2014), including the important stakeholder roles that academic (e.g., faculty, advisors), administrative (e.g., financial, career placement, or counseling), and social (e.g., campus organizations, housing) staff collectively play in building such student commitment. Raisman (2016) collected data by interviewing 618 college students who had left at least six months before being interviewed. The study found that the two biggest contributors to students leaving were "customer service" issues—that is, "the college doesn't care" (20%) and "poor service and treatment" (24%). Continually monitoring (e.g., via yearly survey) how students feel about their university or college, as well as academic, social, and administrative components, is critical. For example, academic advising has been found to be important to student satisfaction (Douglas, Douglas, & Barnes, 2006). By building strong institutional commitment at a college or university, this can transcend students' changing colleges/schools within a university (e.g., liberal arts to business), or changing majors within a school (e.g., finance to marketing). Such intra-university transfers still retain the student. Thus, students may carry out different within-university transfers but with higher institutional commitment, still stay enrolled in the university.

Study Limitations and Implications for Future Research

Only smaller percentages (22% for fall; 23% for spring) of intent to transfer were accounted for collectively by the variables used in this research design. Drawing on prior attrition- and persistence-related research (Metzner & Bean, 1987; Tinto, 1997), to have been able to also measure student goal commitment, as well as academic integration (e.g., academic advising) and social integration (e.g., college friends) variables, may have helped to explain additional transfer intent variance. However, missing data was already a concern, and making the survey longer would have probably further reduced the response rate (Fan & Yan, 2010). There were some variable mean differences between the complete-data versus incomplete-data respondents for both samples. However, these mean differences were not large.

It is important to caution against generalizing the results of this study to other business undergraduates or more general college student samples. Both samples were of full-time students, primarily taking F2F courses at a Tier 1 urban, state-supported AACSB university. Sampling undergraduates in other business school and general college settings is important (e.g., Tier 2 AACSB, rural, private). For an undergraduate business student already studying at an AACSB accredited school, it may be a little more challenging to transfer to another business school. Having started at an AACSB-accredited school, it could be in the students' best interest to transfer to another AACSB school (e.g., to maximize course credit transfer).

Students taking an online or hybrid class was the initial reason for survey eligibility. Online versus hybrid are two different classroom delivery modes. However, students were asked to respond to the "online components" of their hybrid course (e.g., video lectures, WebEx sessions, online discussion boards). Therefore, items were phrased using an "online/hybrid" referent. Given

the concern about missing data, this online/hybrid referent allowed for a larger aggregated complete-data sample size. Depending on the number of online versus hybrid courses offered in a university setting, future research could consider further distinguishing online versus hybrid course samples. Although a student's complete-data response was analyzed only once in a semester, it is possible that the same student could have participated in the separate semesters of data collection. However, if the same student participated, the surveys were five months apart (December 2016 and April 2017). Such a time gap should minimize survey bias (e.g., students remembering in April how they responded in December). In addition, it is highly likely that the "same" student across both surveys would be answering survey items about a different course in each semester.

Business courses were selected based on student enrollment, and there was no control for the mix of online/hybrid or F2F courses sampled (Blau, Pred, et al., 2016). Likewise, there was no control for professors teaching different course formats. In addition to the measurement issues already noted, all measures were self-reported, so common method variance is a limitation. A one-factor test (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003) found that the first factor accounted for 19% of the total variance in the fall sample, and there were five factors with eigenvalues of at least one. For the spring sample, the first factor accounted for 20% of the total variance, with five factors having eigenvalues over one. These results indicate that if the first factor represents "method variance," it is not an overriding limitation. There were much lower means for the number of prior hybrid courses (versus online classes) taken. The prior hybrid course measure was "aggregated" into the prior online course measure. Short scales, demonstrating good reliability, for measuring intent to transfer, institutional commitment, willingness to recommend online courses, and perceived favorability of online courses were successfully used.

Conclusion

The percentage of undergraduate students taking at least one online course is expected to continue to grow (Jain, 2015). Continual efforts to monitor the effects of online courses on student-related outcomes, including persistence, institutional commitment, and learning, are needed. This study explored the relationship of demographic, curricula, and motivation-related variables on a less researched outcome variable (i.e., business undergraduates' intent to transfer to another business school). In summary, we conclude that continually monitoring and building student overall institutional commitment is the best way to deter student transfer intent. This outcome variable, intent to transfer, should be added to the research agenda for ongoing efforts across all universities and colleges when testing the impact of online education.

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Reflection in Learning

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Abstract
This study explored the impact of reflection on learning in an online learning environment. Twenty-five students from four online courses (two courses, each with two sessions) participated in this research project. Reflection was purposefully designed and embedded in various assignments. Data were mainly collected from interviews and students' various types of reflections. The inductive content analysis method was employed to analyze data. Five themes were generalized in terms of how reflection impacts learning: Increasing the depth of knowledge, identifying the areas which are missing or deficient, personalizing and contextualizing knowledge, providing comparative references in learning, and helping learners build structural connections in knowledge and social connections among learners. This study provides foundational ideas for designing reflective activities to promote students' learning in an online learning environment.

Keywords: Reflection, online learning, structure of knowledge

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Reflection in Learning

Reflection plays an important role in the field of education. Scholars have discussed reflection from different perspectives for different purposes. For example, in Kolb's (1984) experiential learning model, reflection is the key for learners to transform concrete experience into abstract concepts. Schon (1987) differentiated the concepts of reflection on action and reflection in action. Reflection is also widely used in practice in various types of forms such as journals, portfolios, and reports (Helyer, 2015; Helyer & Kay, 2015).

Many times, students complete their assignments without reflection. Reflection in learning is necessary for students to revisit what they have learned for improvement and for in-depth learning. It gives students an opportunity to document their learning journey and provide references and suggestions for future students. Through reflection, students will "become accomplished at recognizing that they are learning and building skills continuously" (Helyer, 2015. p. 23). In this study, the impact of reflection on learning in an online learning environment will be explored, which is less discussed in the literature. Specifically, the research question is: How does reflection impact learning and support learners to learn?

Review of Related Literature

Scholars have widely discussed reflection and categorized reflection from different angles. Roskos, Vukelich, and Risko (2001) summarized the types of reflection discussed by scholars based on its function, structure, and timeline. Based on function, reflection includes personal reflection and classroom practice reflection; based on structure, reflection includes scaffolding, reframing, and debriefing; and based on a timeline, reflection includes retrospective reflection (reflecting on past actions), contemporaneous reflection (reflecting on the activities in-action), and anticipatory reflection (reflecting on future actions). Heyler (2015) suggested that:

> Reflection is not just about looking back on what happened, it is encompassing. People instinctively reflect on events, perhaps to better understand what has happened and make sense of it; the idea of learning from the past, especially trying not to repeat mistakes is well established. (p.22)

Reflection enables learners to generalize the main ideas, principles, and abstract concepts from experience (Kolb, 1984). The process of reflection includes debriefing and reframing to expand students' beliefs and understanding, using journaling as a form of reflection to help students develop conscious awareness, and using prompts and feedback to guide students' reflection (Roskos, Vukelich, & Risko, 2001). Clark and Brennan (1991) thought that reflective dialogue can facilitate learners to create knowledge and generalize practical examples into explicit knowledge. In reflective dialogue, students "integrate and generalize accepted arguments. They recapitulate actions and draw lessons from their experiences" (Schwarz, Dreyfus & Hershkowits 2004, p. 170), and help students draw conclusions. In reflection, experience is re-thought in order for the perspective to change and the practice to improve (Freed, n. d.). For Lin, Hmelo, Kinzer, and Secules (1999), "reflective thinking is an active, intentional, and purposeful process of exploration, discovery, and learning" (p. 46). They stated that:

> In order to make conscious decisions about the uses of information, students have to step back and reflect on how they actually make decisions and solve problems and how a particular set of problem-solving strategies is appropriate or might be improved. (p. 43)

Reflection is to evaluate, synthesize, and abstract the concrete examples shared. It reveals the important features and relations which are neglected in abstract and explicit knowledge.

Agouridas and Race (2007) said that reflection is a process of personalizing and understanding the contents, process, and the rationales for what we have learned. Through reflection, we relate our personal experience to a wider perspective, which helps us to see the bigger picture. Helyer, (2015) stated that the process of reflection utilizes knowledge that "lies deep within (tacit knowledge) – so deep it is often taken for granted and not explicitly acknowledged, but it is the data humans use to make instinctive decisions based upon accumulated knowledge from past actions and experience" (p.22). Winitzky (1992) viewed reflection as a process to retrieve, apply, and analyze knowledge, and to relate that knowledge to larger issues. Agouridas and Race (2007) also agreed that we can step back and reflect on the process of assignments and think of their broader meanings.

Larsen, London, and Emke (2016) argued that reflection is not just for social purpose, it can also be used to "influence students' learning from experience, increase their awareness of their thoughts and actions, and increase their perceived recall of experiences" (p. 285). When students conduct the reflections, they repeatedly retrieve the information from memory, and the retention of experience is thereby increased.

Reflection stimulates students to question their philosophy and beliefs and make connections between students' beliefs and their assignments, and to tie theory to students' personal beliefs. "Developing a reflection means that an individual begins to automatically challenge and question why tasks were undertaken in a certain way rather than how they were carried out (Helyer, 2015, p.23). Ovens and Tinning (2009) believed that through engaging in reflective activity, students "could begin to peel back some of the layers of their social reality" (p.1130) and search for the social structures which have contributed to their oppression.

Reflection is not just an individual activity. Reflection can also be a collective activity. "Joint reflection with peers aids individuals as they refine, develop, and enhance teaching skills from various perspectives" (Krutka, Bergman, Flores, Mason, & Jack, 2014, p. 85). Collaborative reflection can bring different perspectives when we have dialogues with others, when others see things differently, ask different questions, or challenge our assumptions (Krutka, et. al., 2014). In the collective reflection, "We interpret what we do and why we do it by involving ourselves and others in conversation, debate, and reflection on individual and collective understandings. We value the importance and relationships of all parties involved" (Bowne, Cutler, DeBates, Gilkerson, & Stremmel, 2010, p. 49).

Larsen, London, and Emke's (2016) research indicates that in reflection processes, learners can exchange perspectives among group members and reevaluate their original perspectives. Different perspectives and alternative ways of solving problems can be generated in this dialogic reflection process.

Learners can reflect on both professional issues and private issues. Reflection "without connection to course material will not result in learning" (Roberts, 2008, p.125). Reflecting on the professional level is important. However, it is also necessary to reflect on private issues since through reflecting on private issues and sharing each other's personal experiences, learners will find more connections and a sense of safety and belonging, and they can also provide each other social support in this process (Nilsson, Andersson, & Blomqvist, 2017). Roberts (2008) reminded us though, that reflection may veer off into too emotional and uncomfortable topics, which can cause ethical issues if the information is misused.

To support reflection, educators can help learners externalize their tacit mental activities by prompting them to reflect on what they have done before, during, or after an event (Lin et al., 1999). Learners can create portfolios to reflect on their professional work and make their concrete practice visible. "The reflective comments expected in teaching portfolios are articulations of identity in practice and negotiations of the repertoires of the community" (Berrill, & Addison, 2010, p. 1180). Reflecting on learners' experience "enables the participants to create and share local explicit and tacit knowledge" (Gausdal, 2008, p. 211). Scholars used writing formats such as portfolios, summaries, journals, etc. to reflect on experience (Roskos, Vukelich, & Risko, 2001). They found out that interactive reflection can lead learners to more in-depth ideas. They recommended that instructors design the instructional protocols to help students develop reflective thinking. Yaffe (2010) recommended to improve self-awareness and reflective ability through different stages of reflections: Learners started with self-reflection through video-taping the lessons from their perspectives. Both mentors and learners then watched the recorded lessons and identified the strengths and weaknesses of learners' practical tasks and looked for alternatives and ways in which the tasks could be improved. The purpose was to improve the ability of learners to reach to a higher level of reflection, increase their self-awareness in their work, and make their implicit knowledge explicit.

Cavilla's (2017) study indicates that reflection may affect students' affective levels, but not necessarily their cognitive levels. To make reflection useful for students' academic performance, reflection "should be implemented in a well-structured, intentional manner with purposeful fidelity throughout the course of a student's academic career" (p. 12). Persson, Kvist, and Ekelin's (2018) research shows that students may not be honest about their reflections when they adjusted them to suit the needs of the instructors. Therefore, the researchers suggested that reflection be used for the purpose of development without assigning credit points so that students feel safe to provide their honest reflection.

Methods

This research project was conducted in a public research university in the Midwestern United States. Twenty-five graduate students from the online courses (two courses, each with two sessions) participated in this research project. The first course is about the foundations of adult and community education, and the second is about adult learning theories. Even though the assignments in these courses were different, the requirements for reflection were nearly the same. The study was reviewed and approved by the University Institutional Review Board. Participating in this research project was voluntary, and the participants could withdraw from the project at any time.

Design and Procedures of the Intervention

Based on the ideas of reflection in literature, various reflections were designed to meet learners' professional and private/emotional needs. At the professional level, to help students understand the values of assignments and how these can contribute to their professional work, reflection was embedded into the assignments.

The followings are the specific procedures in the reflection design:

First, after students completed each assignment, they were required to reflect on content-specific knowledge, their learning processes, and the value of their learning. Specifically, at the end of each assignment, students were required to reflect on the highlights, or the uniqueness, or the most significant parts of their assignment, the process of how they completed their assignments, the lessons/tips they gained in this process, and on other information they wanted to share. To reinforce their learning, students were also required to summarize the main ideas of each assignment in a summary table. Such reflection serves as an evaluation of students' assignments and helps students check to see whether or not they have completed every required task in the assignments.

Secondly, students completed a midterm course reflection and a final course reflection about their opinions of the online discussions, the group projects, the knowledge and skills they learned in the course, and their overall impression of the course, etc. These reflections mainly served as feedback for course improvement and for students to review what they had learned.

Thirdly, students reflected on the following in their final project demonstration: their learning experience, their learning process (reflecting on past actions), the highlights/the uniqueness/creative aspects and the most significant parts of their project (reflecting on the activities in action), and the lessons/tips they gained from their whole project. They also reflected on their survival tips for the course, their learning journey during the semester, lessons they had

gained, knowledge they had learned, and their suggestions for future students (reflection on future actions). These reflections were recorded in videos and posted publicly on their group blogs.

The above reflections include both "reflection on past," "reflection in action," and "reflection on future actions"; academic/profession related reflection, such as reflection embedded at the end of each assignment for the purpose of conceptualizing students' learning, and private reflection, such as learning journey and survival tips, for the purpose of providing students social and emotional support and creating a sense of community and connection. To promote the group reflection, students were required to submit all of their assignments to their group blogs so that other students could access and comment on their work and at the same time learn different perspectives from their reflections about how they conducted their project. To provide some private space, students were required to submit the final reflection paper privately to the instructor.

Data Collection and Analysis

Data mainly included interviews and participants' various types of reflections. These included individual students' mid-term course reflections, final reflection papers, as well as students' responses to the questions about reflective dialogue in the online discussions. In interviewing students, I (the instructor for these courses too) asked students' opinions of reflection on their learning. I also reflected on the instructional practices in previous courses, in the current courses, and on possible changes to future courses with the students I interviewed. As part of the online discussion questions, students were required to discuss what they had learned from the courses. This type of reflective dialogue is to help students generalize their experiences and draw lessons from them. Other questions that I asked the participants in interviews and in written reflection included: How do you think this type of reflective dialogue can help you understand the topics in this course? After you did each assignment, what have you gained, what was the value about this assignment? What lessons have you gained, what knowledge did you learn? What else can we do to improve this type of reflective dialogue?

The inductive content analysis method was used to analyze data. Such analysis includes using open coding (labeling the chunks of data based on summarizing the meaning of the text), creating categories (grouping the labels based on their similarities and differences), and using abstraction (generalizing themes based on the categories created) (Elo & Kyngäs, 2008). Specifically, I read the data, highlighted the segments of the data which were relevant to the research questions, I then put these highlighted data in Excel, summarized the meanings of these data, and used a set of codes to label these data and to reduce the volume of data. I then grouped the data segments with similar codes and categorized them. Based on the categories created, I generalized the themes.

Results

Six themes were generalized in terms of how reflection impacts learning: Increasing the depth of knowledge, identifying the areas which are missing or deficient, personalizing and contextualizing knowledge, providing comparative references in learning, helping learners build structural connections in knowledge, and social connections among learners. Generalization here is an abstraction process through which we draw general conclusions/principles based on particulars. It is part of the inductive analysis process (Polit & Beck, 2010).

In reporting the data, I did not indicate how many participants provided similar data since some data may have been provided by one or two learners, but represented what commonly occurred in the courses, or indicated the unique situation in the courses since I as an instructor have the local rich knowledge of the specific circumstances in the courses. As the instrument of the qualitative research, I as a researcher play a role in understanding what is common or what is unique in these courses based on my observations of the courses, my experience of interacting with students, and the issues as they occurred in these courses.

Reinforcing and Deepening Knowledge through Revisiting the Knowledge Learned

Reflection was required at the end of each assignment. Students reflected on the process of each of their assignments and on the value of their assignments. Through reviewing and revisiting the knowledge learned, some students thought that their new knowledge had been reinforced and deepened. One student said:

> The reflection at the end of the evaluation assignment was beneficial because it was like getting a high light on what was just done. You can write something down and not pay much attention on it till later, but by putting the reflection section on the end it almost forced you to look at what you did, kind of digested what was just accomplished.

This was echoed by another student who thought that reflection made students think about the assignments more deeply after they looked back and analyzed what they had completed:

> Reflections helped me understand the assignments because I thought about them more deeply. It made me analyze the theories a little more because I revisited them after the assignments were completed. I think that it is a good learning tool to come back to a theory after learning about it, so that you can analyze it and see if it was effective in a real-life situation.

One student also mentioned that through reflection, students could look back to what they had completed and understand the applicative aspect of the knowledge:

> The reflections allowed me the chance to really take a breath and look back on what our group had just completed. This was welcome because when working I sometimes forgot to really think about exactly what I just did. By completing these reflections, I was able to really know how to apply what I just learned in real world applications and programs.

> Reflection activity allows students to conceptualize the experience, and raise the knowledge to a higher level meta-cognitive aspect. As one student said, "the section on Reflections helped me to see my own meta-cognition."

Improving Learning by Identifying the Areas Which Are Missing or Deficient

Reflection helped students improve their work. The participants thought that reflection helped them to self-evaluate/assess the knowledge they had acquired and to identify the unclear areas in learning. One student said that he appreciated the reflection portion at the end of the assignment, since it made students look back at their efforts and see how they could improve their learning in the future. One student said that after he completed his assignment, he reflected back on what he had done and realized that maybe some pieces could be completed better next time. One student said that "The reflections helped me with identifying the areas of our project where more clarification was needed." Most of the students noticed that reflection allowed them to step

back to review all of the knowledge they had learned and to see the value of their work holistically, not just partially. One student said:

> The reflections were a great part of looking back on what I had learned and how I had reached that point in the project and my understanding. I was able to identify ways to improve the group's cohesiveness and the overall progression of our work by reflecting on our efforts.

Reflection is a good way for students to look back on their work to evaluate and identify what is missing, just like one student said:

> I thought the reflection part of the assignments was a good way for groups to assess their experience through the specific assignment and what could be done better for the next one. After reviewing ours, I do wish we had reflected on different aspects for each assignment. It seemed that our group had to focus a lot on trying to maintain productive communication to successfully complete each assignment. Even though communication is important, it would have been nice to be able to focus on other aspects.

Some students thought that reflection embedded in the assignments provided them opportunities to make changes to improve their work while they looked back at what they had completed. Through reflection, they could find out the best way to do things. One student said:

> The reflection piece was a good way to look inside myself and see what I felt was working well and what was not. It also allowed me time to reflect so I could make any changes necessary to better the situation moving forward. I realized through the reflections that so much of this field is trial and error. Being open to finding out what will work and what will not but being flexible enough to try new things.

Reflections shared in the group blogs allowed other students to understand each group's projects and provide meaningful feedback to their peers for improvement. One student said:

> I appreciated the reflections at the conclusion of most assignments. It always beneficial to look back at your efforts and see how you could improve in the future. These reflections also allow for purposeful feedback to help create meaning for the learner. This reflection piece is significant for any type of learning to take place, and it also holds true with the course.

Personalizing and Contextualizing Knowledge

Students were required to reflect on what they had learned from their own projects in their assignments, and what they had learned from other groups in their final survival memo — students' reflections of how they successfully completed the course and "survived" during the semester. Some students said that the reflection part of each assignment was their favorite part, since it gave them an opportunity to write about their learning process and about what they gained from it. By describing their learning journey in their reflections, students were able to personalize or contextualize the knowledge and transform their implicit knowledge into explicit knowledge.

Some students described the process of how they completed their assignments with personal experiences and emotions, how they understood the theories, and how they transformed the theories into concrete practical programs. Some participants said that by looking at others' reflections, blogs and projects, they could see the theories and how they could be used in practice. One student said:

> I also think that reflecting on others' projects helped me to think more critically about the learning theories and how they were being applied which helped me to understand the other theories better.

First-hand experience described by students provides the concrete context for other students to understand the applicative aspects of the theories. One student said:

> The reflections in each assignment helped me to understand the assignment in regards to how the theories and ideas were applied in a practical sense. There were very detailed descriptions from other classmates in regards to how they applied different techniques and methods in their study. It is always nice to get first-hand experience from my peers versus reading about it in a textbook.

Students were required to make video introductions about how they completed their projects. One student said that reflective practice really made him go back to look at what he had talked about in his video introduction of the project and find out the information which was important. He said that when he reflected on what he did, he thought of the personal connections with the community he had and how his past experiences connected to his current situation. He drew all of these together through reflection. Reflection allowed him to tie what he had learned to the community where he had personal connections and meshed his personal knowledge about community together with the theories he had learned and the project he had completed, which helped him understand knowledge in context. This was echoed by another student who described how putting knowledge in context through reflection helped him understand and retain knowledge:

> I personally am an auditory learner so listening to content being placed in a context and then reflecting on that helps me through the learning process to not only retain information but to also understand and contextualize the content as well.

Through reflection, students personalized different learning theories and provided concrete contextual information about how to apply theories in practice. As one student indicated, reflection reveals students' personalized thinking of the theories:

> The reflection session allowed me to gain better understanding of some theories that I was confused about. This opens a person's thinking about preconceived notions about different types of learning. We can apply these theories in practice by practicing what we preach because all theories are different and not all learning theories are universal.

Providing Comparative References in Learning Through Collective Reflection

Reflection reinforces students' understanding of other students' work. As one student stated, "before we reflect on other projects, we have to understand other projects ideas, designs, and theories." He further stated the benefit of reflection in helping students increase their knowledge:

> Reflections on other projects is good to know what other students worked on. Having some idea about their project is so important to increase our knowledge in different designs, which can help build more practical information, before we reflect.

Reflection plays an important role for students to compare their projects with others and to see the differences and similarities. One student said that **"**Reading other students' reflections were interesting because they often had a different perspective than the way I thought about it. I think it is important to see the world through another lens." Another student shared a similar view about the role of reflection in helping students see the different perspectives : **"**Reflections of others

helped me to see the theoretical ideas from the perspective of others; where we were in alignment and where we differed in our thought processes. It helps us to further realize our diversity."

Another student further stated how reflection pushes students to check each other's and thereby gain a wide variety of understandings of the knowledge that other students provided in their reflections:

> By requiring that we review and provide reflection, we were encouraged to look at the work everyone was doing. This helped to get a wide understanding of each theory and possible ways that they could each be applied in the real world. It also ensured that we were given feedback from our peers and therefore given a different perspective for future facets of the project.

One student stated how reading others' reflections helped students learn the same knowledge in new and better ways:

> I noticed that there was often an overlap in the reflections. Although we learned about something with one assignment didn't stop us from learning more with the next one. For example, communication is one lesson I repeated in the reflections. We constantly were learning new and better ways to effectively communicate with our group throughout the entire course.

Many students' reflections showed their particular ways of completing their projects, which served as references for other students. One student said: "I saw ways that other groups worked together and learned about their particular projects, which enabled me to steal some of their proven lessons for their learning style and their process as a group."

Students reflected on their experience in each assignment. However, there was still confusion in completing their assignments, especially in terms of the rationales for some assignments. I asked students to reflect on their experience in the mid-term reflection and share their struggles and expectations in the courses. I responded to students' questions, and at the same time shared the detailed rationales for why I had certain requirements for some assignments and reflected on the context of why I made such changes, as well as on the experiences of previous students. I also reflected on my struggles in teaching and my experience of teaching previous courses to provide more contextual information for the questions I asked in interviews. Such reflective dialogue with the interviewees helped students understand some concepts and help them to see the value of the assignments. For example, one student said:

> I was a little confused on the monthly summaries, but when you explain it like that, it completely makes sense. And I think it's completely valid to have, and I think it's a valuable piece... So, it kind of shows our plan, and then we can see if our plan was successful that month, I guess? But it should show others how to organize their summaries that way. But I didn't look at it that way. But now that you say it, I'm like that's a good piece to incorporate.

I interviewed students every semester and revised the courses based on the feedback from the students. I reflected on the overall course design to find out the areas which needed improvement and the areas which should be integrated into the course design next time. When I noticed that most of the students did not do some assignments well or if the online discussions were not active, I knew that the courses were not designed well and needed improvements.

In my online courses, one assignment connects to the next one, and the final assignment is the overview and demonstration of the previous assignments; reflection is embedded in each assignment. In each assignment, the assignment is divided into several steps, and reflection is the final step of the assignment. Such progressive design enables students to not only see the connections of each step in an assignment, but also the connections among assignments. Students had a chance to check each part of the knowledge they had learned in order to improve their future work. As one student said:

> The reflection was an integral part of our project and allowed me personally to take a step back (so to speak) and think about the steps we took and how to move on any better the assignment at the next step.

Another student further stated how such design of the reflection helped students understand the connection of one step or one assignment to the overall structure of the knowledge they had learned: "It also demonstrated how each assignment fit into the overall process of learning, showing how each step worked in a structured timeline to provide the most complete and working understanding and application of our specific learning style."

Through reflection, students find social connections with each other and build relationship with others. One student said that **"**Reading the reflections from the other group members made us feel like we weren't alone. The reflections were very similar." Another student said that "Reading others' reflections allowed me to realize most people struggled with the same aspects and just how great my group really was." One student said that by sharing reflections with each other, students received positive comments from their classmates. Such actions "create a community amongst the learners within the course and that support system can be very beneficial especially in the online environment."

Conclusions and Discussions

Reflection plays an important role in promoting adults' learning. Reflection enables learners to question their actions, values, and assumptions (McClure, n. d.). Through reflection, learners reviewed and revisited the knowledge they had learned, explored the depth of the knowledge, and reinforced the knowledge. Reflection allows learners to step back to review the whole process of learning and to recognize the value of the knowledge holistically, not just fragments of knowledge.

Some students' reflections on their classmates' work mainly focused on emotional and social support, which are necessary for creating a collaborative and personalized learning environment. However, the value of reflection is more than just giving emotional and social support. In their reflections, students collectively shared some tacit information about how they conducted their projects in different ways, how they handled difficult situations, how they comprehended the course materials, etc. Such reflection helped students revisit and evaluate their own learning experiences, conceptualize the values and lessons gained in their learning, discover their learning gaps, and synthesize, abstract, and interpret the rationales for what they did and why they did it in certain ways (Bowne, et al., 2010). Such reflection requires students to be able to analyze, synthesize, and evaluate the knowledge they learned, which is a higher level of knowledge compared with the comprehension and application of the knowledge students gained through their projects (Bloom, 1956).

In reflection, we recapitulate our actions and draw lessons from our past experiences (Schwarz, Dreyfus & Hershkowits, 2004). Reflection enables students to rethink their experience in order to improve practice and change their perspectives (Freed, n. d.). This study shows that reflection helped students improve their work. Such improvement was shown in different ways. For example, through reflection, students could identify the areas that were not clear, look for the best strategies of completing their tasks, and identify the areas that were neglected by students. Students also improved the cohesiveness and the overall quality of their work. Reflection shared with the whole class enabled students to read others' reflections and understand each other's projects better. Such reflection also provided students an opportunity to offer meaningful feedback to each other and help each other improve their work in the future. Through reflections, students gained not only cognitive knowledge, but also knowledge which includes "facts and concepts, knowledge of procedures, and knowledge of conditions" (van Velzen, 2016, p. 23). Students also gained metacognitive knowledge—general knowledge about how learners process information and how learners understand their own learning process (Livingston, 1997).

"Reflection on the actions, thoughts and feelings that have arisen in a learning event can often provide an insight into learners' personal foundation of experience, into themselves, and into their ability to learn from this particular situation" (Boud & Walker, 1990, p. 63). This study shows that reflection gives students an opportunity to personalize their learning and provide more contextualized information about their projects (Agouridas & Race, 2007). In reflection, students were required to share the process of how they completed their assignments, through which the implicit knowledge became explicit. Such process description involves students' personal experiences and their understanding of the theories, as well as their emotional reactions to the events which occurred during the process of completing the projects. Such first-hand experience shared by peers provided the context for the theoretical knowledge, which is much easier for students to learn, and can help students find connections between theories and practice, since abstract knowledge contains little information relevant to the context from which abstract knowledge is derived. Such input information contains surface cues pointing to an abstract system that makes learning tasks simpler (Goschke, 1997). Reflecting on an event can also reveal learners' experiences and issues of which learners are not aware, which may lead to thoughts and actions that learners may not know of (Boud & Walker, 1990). This is indicated in this study when reflection helped learners build personal connections between the theories and the community with which they were familiar.

Similar to the idea pointed out by some scholars (Krutka, et al., 2014), collective reflection among students brings different ideas and enhances students' learning from various perspectives. Reflection shared with the whole class enabled students to read others' reflections posted on their blogs and to understand each other's projects better. Such reflection also provided students an opportunity to offer meaningful feedback to each other in their group blogs and to help each other improve their work in the future. By reading their peers' reflections about how they completed their projects, students were able to compare their projects with their peers' projects, which provided students various new perspectives in learning. By reading others' reflections, students were able to use others' work as a reference and to identify the similarities and differences between their work and that of their peers, as well as to see how the same work could be completed through different approaches, viewed through different lenses, or addressed in a new and better way. Through comparison, students could relate their individual experience to a wider perspective and view their work within a bigger picture (Agouridas & Race, 2007). I also reflected with students

about the actions I took for course improvement, my rationale for the online teaching practice, the changes I made in the online courses over the years, and my experience with previous online courses, which clarified questions students may have been puzzled about, and also provided students references in terms of the changes in the online courses and the context and rationales for such changes. Such reflection helps students increase their meta-cognitive knowledge. Students with meta-cognitive knowledge "have the ability to think through their learning in advance in terms of which study and memorization techniques are likely to be most effective for them to learn a particular learning task" (van Velzen, 2016, p. 16).

This study indicates that reflection embedded in designed tasks can help learners see the interconnections of the knowledge they are learning. Reflection embedded in the progressive design of the assignment (one assignment serves as the foundation for the next one) allows students to see the structural connections within assignments. Students were able to see the shifts of knowledge from the concrete format to the generalized format, and how each portion of the assignment interconnected to the other portions, and how one assignment connected to the rest. Seeing such structural connections allows students to see how knowledge transforms hierarchically from one level to the next (Bloom, 1956).

Reflection also enabled students to find social connections among their fellow learners. Most of the students shared their emotions, their struggles, their communication problems, and the difficulties they had in doing their group work. When students shared the process of their work in their reflections, they found that their classmates had had similar experiences and struggles in their own learning. This made the students feel closer to their peers and helped strengthen their interconnectedness. Further, they gained the ideas of how to solve such problems when some peers shared their ideas of how they dealt with similar problems in their reflections. However, most students' reflections were at the stage of self-reflection and self-awareness (Yaffe, 2010), and were not raised to the stage of critical reflection and did not reach the conceptualized level of knowledge. Reflection should not just increase learners' self-awareness but should also help learners conceptualize their experience and extend their personal experience to a larger context (Kolb, 1984; Winitzky, 1992).

Implications

To facilitate reflection and to support learners in seeing the value of the knowledge they have learned and to reinforce the new knowledge, instructors can design assignments to include reflection. Specifically, at the end of each assignment, instructors can ask students to reflect on the process and value of the projects they have completed and conceptualize the lessons they have gained to improve their projects. Such reflection on past actions (Roskos, Vukelich, & Risko, 2001) will require students to revisit their learning and discover its value as well as the issues that were missed.

To improve learners' meta-cognitive knowledge though reflection, instructors can design prompt questions for the reflection, such as: What have you missed in your assignment? Which parts of your assignment were not clear to you? What could you do to improve your work? What would you do differently, if you could redo your assignment? Instructors should encourage students to perform critical reflection of other students' work posted in their blogs by comparing their work with their peers, and by pointing out the limitations of their peers' work. Instructors can also provide examples from previous courses as references to show students the changes to the present course compared with previous courses, and the rationales for such changes. Such

reflection shared with students aims to help students understand the methodology and techniques used to support their learning and to increase students' meta-cognitive knowledge (van Velzen, 2016).

Personalizing knowledge and providing contextualized knowledge help learners understand the abstract theories and how the knowledge they have learned relates to the practical field (Agouridas & Race, 2007, Boud & Walker, 1990, & Lamberts & Shanks, 1997). To help learners personalize and contextualize their learning, instructors can ask students to share the experience of how they completed their project, as well as how they understand the theories by demonstrating their own projects and by showing their peers the process and rationales for their projects in videos. Such reflection gives students the opportunities to share their "explicit and tacit knowledge" (Gausdal, 2008, p. 211) with their peers and allows their peers to see the knowledge that is otherwise hidden. Educators can help learners externalize their tacit mental activities by prompting them to reflect on what they have done before, during or after their learning activities (Lin et al., 1999). Instructors can require learners to reflect on content-specific knowledge and process. To personalize the theory, instructors can ask students to reflect on which ideas in their projects remind them of their own experience, and how. Students can also reflect on daily practice, events, behaviors, etc. Such reflection focuses on both professional and private issues and can be facilitated by data from external resources, such as events produced electronically, structured feedback, or feedback from other persons (Kottkamp, 1990).

Technology can also help learners make the tacit learning process explicit by showing what they have done and how. For example, learners can use tools such as video and graphics to not only document the process of how they solved the problems, but also how they traced, recorded, and visually displayed their educational products.

To contextualize knowledge often involves revealing more personal information. This requires an environment which makes students feel comfortable and feel connected (Nilsson, Andersson, & Blomqvist, 2017), especially in an online environment where it is hard for students to be open to each other due to the lack of a physical interactions (Chang & Kang, 2016). The instructor can encourage students to reflect on the struggles they had and their emotional and personal stories in the process of their learning. Students can find connections through such stories and can easily get connected to each other. In terms of what to reflect on to help students build connections with each other, instructors can recommend the following: the management system that students used to manage their projects and budget their time and group resources, the methodology such as how students approached their projects and how they completed their process; their emotional experience, such as how they struggled in the course, and what kind of difficult situations they had, and how they solved these difficult situations. Other students may find the connections to some of these experiences and gain knowledge and trust from such reflections.

To help students see the structural connection of the assignments, instructors can embed reflection in each assignment. The instructors can design these assignments based on the interconnections of these assignments and the learning objectives they would like students to achieve, and ask students to reflect on their learning process and how one assignment contributes to another in the final electronic demonstration. Presenting the educational product is also an act of reflection, since learners can review the list of what they have completed and reflect on the process of how they conveyed the ideas in their product (Lin et al., 1999). The instructor can also divide each assignment into several major parts and ask students to summarize the main ideas of each part in a table at the end of each assignment. Such evaluative reflection serves as a checklist

for students to review each part of the knowledge they had learned and helps students see their learning product from the holistic perspective.

Educational Importance of the Study

This study contributes to the practice of online learning by pointing out how reflection impacts learning and helps learners to learn by increasing the depth of knowledge, identifying the areas that need improvement, personalizing and contextualizing knowledge, providing comparative references in learning, and helping learners see the structural connections in knowledge and creating social connections among them. This study provides foundational ideas for designing reflective activities to promote students learning in an online learning environment. This study also provides practical suggestions about how to embed reflections in learning activities to support students' gaining different levels of knowledge.

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Self-Determination: Motivation Profiles of Bachelor's Degree-Seeking Students at an Online, For-Profit University

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Abstract
Grounded in self-determination theory, this exploratory quantitative study investigated motivational profiles of bachelor's degree-seeking students at an online, for-profit university. Cluster analysis revealed two distinct motivational profiles (internally and externally regulated) of 158 students enrolled in a bachelor's degree program. The significant differences between the two profiles offers support for the multidimensional nature of motivation as argued by self-determination theory. A chi-square test of independence revealed a significant association between motivational profile membership and gender. No associations were found between motivational profile membership and age. The results offer insights into the motivations of bachelor's degree-seeking students attending an online, for-profit university. Over two thirds of the students in this study exhibited high external forms of motivation. It is recommended that practitioners employ methods to increase autonomous forms of motivation in the online, for-profit educational setting. Understanding student motivations to graduate may help administrators, curriculum designers, and instructors develop focused interventions and best practices that could be used to increase graduation rates.

Keywords: self-determination theory, motivational profiles, academic motivation scale, online education

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Self-Determination: Motivational Profiles of Bachelor's Degree-Seeking Students at an Online, For-Profit University

More Americans are pursuing an advanced education than ever before, and by 2026 enrollment rates are expected to increase another 9% at four-year schools (Institute of Education Sciences, 2017). The leading increase in enrollment rates occurred at private, for-profit institutions from 2000 to 2015. Enrollment rates at for-profit institutions were 139% higher than nonprofit institutions and 141% higher than public institutions (Institute of Education Sciences, 2017). While for-profit universities and colleges have been instrumental in increasing enrollment rates, there

exists a disparity between the graduation rates at for-profit institutions and other institution types. By 2015, first-time, full-time bachelor's degree-seeking students had graduated within six years at a rate of 66% from nonprofit institutions, 59% from public institutions, and only 23% from for-profit institutions (Institute of Education Sciences, 2017).

Admission policies and acceptance rates help explain the imbalance in graduation rates among schools. Sixty-three percent of for-profit universities have no application criteria (Institute of Education Sciences, 2017). Therefore, for-profit institutions have the highest application acceptance rates to bachelor's degree programs (Institute of Education Sciences, 2017). Unrestrictive entrance policies allow students to gain acceptance without having to take an exam or provide evidence of past high scores or extracurricular activities to demonstrate readiness to attend college. However, many students accepted to for-profit institutions are underprepared for university work, have lower performance rates, and are more likely to drop out (Melzer & Grant, 2016). These characteristics present challenges to institutions actively seeking measures to graduate more students and sustain a place in the education market.

For-profit institutions whose students' primary source of payment is federal financial aid (Bok, 2013; Deming, Goldin, & Katz, 2013) are hesitant to implement remedial courses. If students were required to take non-credit-bearing remedial courses to become better prepared, they would have to pay out of pocket, incur an increased time to graduation (Melzer & Grant, 2016), and be less likely to graduate (Schak, Metzger, Bass, McCann, & English, 2017). Thirty percent of university students forced to attend remedial courses do not show up for program classes due to frustration, and over 35% do not graduate from a four-year program within six years (Complete College America, 2012). Additionally, college success courses designed to increase student preparedness may not have any effect on student persistence (Claybrooks & Taylor, 2016) or performance (Ulmer, Means, Cawthon, & Kristensen, 2016). Hence, a different approach is needed in for-profit institutions to identify the factors that contribute to student persistence to graduation.

Researchers have begun calling attention to the role of noncognitive, psychosocial factors that contribute to undergraduate student success (Aparicio, Bacao, & Oliveira, 2017; Lange, 2015; Thomas & Borrayo, 2016; Walker, 2016). Noncognitive factors are hopeful measures because they account for mental assets that can enhance cognitive development and improve performance (Economic Policy Institute, 2014). Many of these factors are malleable, meaning strategically developed interventions at the individual, course room, and programmatic level could influence more students to persist (Khine, 2016). Motivation variables represent noncognitive factors that students carry with them in the form of attitudes, regulation skills, and behaviors (Ryan & Deci, 2017). The dearth of research on for-profit university students' noncognitive characteristics and even less literature on for-profit students' motivations are problematic for faculty, administrators, and policymakers who want to develop supports for students who attend for-profit institutions (Carroll, 2016). Gaining insight into for-profit student motivational profiles and characteristics through a systematic investigation may have implications for higher education and practice.

The purpose of this exploratory quantitative study was to identify bachelor's degree-seeking student motivational profiles and examine differences between motivational profile membership and student characteristics (i.e., gender, age). A cross-sectional survey design was employed to collect data from bachelor's degree-seeking students at an online, for-profit university. The independent variables used to identify motivational profiles included seven constructs based on self-determination theory (SDT): intrinsic motivation - to know, intrinsic motivation - toward accomplishment, intrinsic motivation - to experience stimulation, extrinsic motivation - identified, extrinsic motivation - introjected, external regulation, and amotivation.

The instrument used to measure academic motivation was the Academic Motivation Scale (AMS) (Vallerand et al., 1992). Although the AMS has been used to investigate a variety of student populations, it has limited use in assessing students attending online, for-profit universities (Carroll, 2016).

Review of Related Literature

Researchers have developed numerous theories to explain human motivation and behavior. The theoretical framework for this study is based on the SDT. SDT is one of the most widely applied and empirically based psychological theories for understanding factors that promote human motivation (Hodge, 2017). Its originators, Deci and Ryan (1985), contended that people have an inherent desire to be competent and to master the environment. However, the basic drive to be skilled is sensitive to the social environment (Ryan & Deci, 2017). In this way, SDT's predictions about human motivation depend on the dynamic interaction between the person's active self and the social context (e.g., online courses).

The degrees of motivation under the tenets of SDT can range from amotivation to extrinsic motivation to intrinsic motivation. Amotivation results in non-self-determined behavior. Students who are amotivated may find no value in attending school. Extrinsic motivation is defined as action for external reasons or internal pressure (Ryan & Deci, 2017). For example, students might attend school because they want higher pay or because education is valued by their family (Ardenska et al., 2016). Coercion and pressure-driven actions are what classify this form of motivation as controlled. Mih and Mih (2016) associated controlled motivation with fear of failure and cheating in the academic environment. Intrinsic motivation is characterized by behavior performed by will or volition (Ryan & Deci, 2017). For example, students attend school because it allows them to continue to learn about new and interesting subjects (Ardenska et al., 2016). Inherent interest and curiosity actions are what classify this from of motivation as autonomous. Researchers have submitted autonomous motivation played the biggest role in predicting student achievement (Jeno, Grytnes, & Vandvik, 2016; Taylor et al., 2014).

SDT has served as the framework for research in the domains of education, business, healthcare, psychology, and sports (Ryan & Deci, 2017). The continuum has been used in studies to investigate participants' intentions to continue sport (Keshtidar & Behzadnia, 2017), to use mobile technology (Nikou & Economides, 2017), and to continue volunteering (Li, Wu, & Kee, 2016). Autonomous forms of motivation positively predicted intention in each of these studies. Li et al. (2016) also found controlled motivation negatively related to intention. Additionally, Nikou and Economides (2017) and Li et al. (2016) found a positive environment positively predicted autonomous motivation.

The person-centered approach examines the individual's complete motivational profile under the framework of SDT. In other words, profiles do not represent opposite ends of the SDT continuum. Instead, the person-centered approach can be used to identify complex motivational behavior regulation patterns (Howard, Gagne, Morin, & Forest, 2016; Howard, Gagne, Morin, & Van den Broeck, 2016). For example, Moreno-Murcia, Gimeno, Hernandez, Belan-do Pedreno, and Marin (2013) found two motivational profiles based on combinations of autonomous and controlled motivations among physical education students from secondary education schools. The person-centered method assumes the multidimensional nature of motivation (Chemolli & Gagne, 2014).

Cluster analysis is a popular multivariate technique used in person-centered analysis. The purpose of cluster analysis is to create groups based on common characteristics in the data. The exploratory nature of this method means the exact number of motivational profiles are not known ahead of time (Pyburn, 2015). In other words, the approach is taken not to confirm a hypothesized number of motivational profiles, but to identify the number and type of motivational profiles within the sample. For example, four motivational profiles were identified using cluster analysis in a study of intra-individual differences in self-regulated learning behavior among college students (Liu et al., 2014). Qualitatively, the researchers labeled two of these profiles as adaptive and two as maladaptive. Adaptive profiles had higher motivation, higher autonomous regulation, and higher grades. Maladaptive profiles had lower motivation and lower grades. These results highlight the unique advantage of profiles in identifying specific combinations of regulation.

Methods

The purpose of this study was to identify bachelor's degree-seeking student motivational profiles and examine differences between motivational profile membership and student characteristics (i.e., gender, age) at an online, for-profit university. The following research questions guided this study:

Q1. What are the motivational profiles of bachelor's degree-seeking students attending an online, for-profit university?

Q2. What association, if any, exists between bachelor's degree student motivational profiles and gender at an online, for-profit university?

Q3. What association, if any, exists between bachelor's degree student motivational profiles and age at an online, for-profit university?

Sample

The population for this study was bachelor's degree-seeking students enrolled in a 100% online, for-profit university accredited by the Distance Education Accrediting Commission. The most recent data submitted to the National Center for Education Statistics (2015) was as follows: 87% of the student body was 26 years old or older, and approximately 31% of students who pursued a bachelor's degree in the 2009 cohort graduated within six years. While this percentage was larger than the national average of 23%, it must be noted that the entire population was accounted for, not just full-time, first-time students. In the interest of developing motivational profiles for the for-profit demographic, the entire student population was used in this study. The university had an open admission policy, with students enrolled in allied health, arts and sciences, business, and engineering and computer science bachelor's degree programs.

A list identifying students enrolled in a bachelor's degree program was created by a university representative (N = 2,604). Although cluster analysis has become popular in recent years, there is no formal approach for determining preferred sample size. Cluster analysis is not an inferential test and does not include significance testing; therefore, power analysis does not apply. However, Formann (1984) recommended a sample size of at least 2^k, preferably $5(2^k)$, where k equals the number of clustering variables. This recommendation resulted in a minimum sample size of 128 and a preferred sample size of 640 for this study based on the seven variables from SDT. To get the highest response rate, the total population was invited to participate in an email survey. Since the study also included inferential statistical analysis, a power sample calculation found that 335 students were needed to compose the sample, with a confidence level of 95% and

a confidence interval of 5%. However, the number of completed surveys resulted in a smaller sample size. Adjusting for the sample size of 158 resulted in a confidence level of 80% with a 5% margin of error.

Measures

The instrument for this study was an anonymous survey which included three demographic questions and the AMS (Vallerand et al., 1992). The demographic information began with one screening question to ask participants if they were currently enrolled in a bachelor's degree program at the university. Other demographic questions included age and gender (i.e., male or female). The AMS is a validated instrument used to measure seven subscales of academic motivation based on the SDT continuum. The AMS consists of an amotivation subscale, three extrinsic motivation subscales, and three intrinsic motivation subscales. The scale includes 28 items, four per subscale. Participants rated how statements applied to them on a 7-point Likert-type scale (see Appendix A). A higher score indicates a higher level of academic motivation, except for the amotivation subscale, in which a higher score indicates a lower level of motivation. Confirmatory factor analysis has been used in previous psychometric studies to test construct validity. Fit indices and residual analysis support the seven-subscale AMS model in previous studies (Can, 2015; Guay, Morin, Litalien, Valois, & Vallerand, 2015; Haslofca & Korkmaz, 2016; Orsini et al., 2015; Stover, Iglesia, Boubeta, & Liporace, 2012). Cronbach's alpha reliability (Cronbach, 1951) is a widely used measure of internal consistency reliability when the measurements represent multiple questionnaire items (Bonnet & Wright, 2015). Cronbach alphas above .60 represent acceptable internal consistency, and alphas below .50 are considered unacceptable (Manerikar & Manerikar, 2015). Internal consistency reliability analyses in previous studies indicated AMS subscales displayed adequate internal consistency reliabilities. For example, Haslofca and Korkmaz (2016) found subscale reliability coefficients were between .77 and 0.86; Orsini et al. (2015) found internal consistency scores were between .65 and .83; and Stover et al. (2012) found values between .61 and .81.

Procedure

The anonymous survey was constructed in Qualtrics (a commercially available online survey platform). This survey study posed no more risk than an individual would encounter in everyday life. Once the study site approved, a list of students enrolled in bachelor's degree programs at the study site was created by a university site representative (N = 2,604). The representative sent the survey invitation to the students on the list via the university email system. The email invitation provided students with all the information about the research project. Students gave informed consent and agreed to participate in the study by clicking on a link provided at the end of the invitation. Participants were allowed withdraw from the study at any time. Responses were collected for seven days to ensure participants could respond at their convenience. The university representative sent a reminder email on the eighth day. Participants were given another seven days to respond at their convenience. The university site did not record or store email invitations. The survey was closed to responses on the 14th day.

In testing the first research question, a cluster analysis in SPSS (25.0) was used to identify student motivational profiles for bachelor's degree-seeking students. Cluster analysis involves classifying individuals into groups based on the probability of membership in each group (Bray, Lanza, & Tan, 2015). The factors from the AMS were used in the cluster analysis. The number of clusters was not known before the analysis was conducted. In this way, cluster analysis differs from other multivariate techniques (Pyburn, 2015). An exploratory approach was taken to identify the number of motivational profiles that existed for bachelor's degree-seeking students at the for-

profit university. Models with an increasing number of clusters were tested and compared to identify the model that best fit the data. This method has been used previously to identify profiles under the tenets of SDT (Howard, Gagne, Morin, & Van den Broeck, 2016; Lindwall et al., 2017; Rothes, Lemos, & Goncalves, 2017). Motivational profiles were then qualitatively classified based on results. Chi-square tests of independence were conducted between motivational profile membership and gender, as well as age to investigate the remaining two research questions.

Results

Two hundred and twenty-nine responses were collected from participants for a response rate of 8.79%. Twenty-seven participants were removed from the data who did not complete the survey, as the analysis was dependent on completed survey responses. In addition, the first survey question identified 44 participants who did not answer that they were currently attending a bachelor's degree program. These participants were removed because the study was based on students who are currently seeking a bachelor's degree. The remaining 158 participants resulted in a 6.07% response rate of useable surveys.

There were 17 participants who had at least one missing value for a total of 21 missing values in the survey data. Item nonresponse can have a disrupting effect on the analysis (Saris & Gallhofer, 2014). Using a listwise deletion method of data analysis would have resulted in using only 140 complete cases, reducing the sample size another 10.76%. Little's MCAR test using expectation maximization indicated data were missing completely at random, X^2 (748) = 729.78, p = .676 (Little, 1988). Since the missing values did not depend on unobserved variables and may be well predicted from other observed variables, expectation maximization was used on each subscale with missing data to estimate missing values so that all available data could be analyzed (Garson, 2015).

Although previous studies have provided support for the construct validity of the AMS (Haslofca & Korkmaz, 2016; Orsini et al., 2015; Stover et al., 2012), to contribute to the growing body of research lending evidence to the construct validity, Cronbach's alpha (α), using SPSS (25.0), was used to test internal reliability of the subscales on the survey. Seven subscales (four items each) from the AMS measured student motivation forms. The constructs IMTK and IMTA had excellent levels of internal consistency (α = .912 and α = .903, respectively). The constructs of IMES, EMID, EMIN, EMER, and AMOT had good levels of internal consistency (α = .878, α = .850, α = .838, α = .870, and α = .854, respectively).

Demographic questions were somewhat normally distributed as assessed by visual inspection of histograms. Participants 25 years of age or older characterized 96.8% of the sample. Males represented 64.6% of the participants, and females represented 35.4% of the participants. The AMS questions were not normally distributed as assessed by visual inspection of histograms, as well as skewness and kurtosis scores. Descriptive statistics and the use of ordinal data for this study supported the use of nonparametric methods, which are free from statistical distribution assumptions (Emerson, 2017; Kero & Lee, 2016; Patle, Libang, & Ahuja, 2016). Median scores were calculated for each of the AMS subscales. Median scores for variables ranged from 1.00 for amotivation to 5.50 for extrinsic motivation - introjected and extrinsic motivation - external regulation (see Table 1).

Table 1.
Academic Motivation Scale: Medians and Percentiles

	N			Percentiles		
	Valid	Missing	Median	25	50	75
IMTK	158	0	5.00	4.00	5.00	6.00
IMTA	158	0	4.50	3.00	4.50	6.00
IMTE	158	0	3.25	2.00	3.25	4.50
EMIN	158	0	4.75	3.50	4.75	6.00
EMID	158	0	5.50	4.00	5.50	6.50
EMER	158	0	5.50	4.50	5.50	7.00
AMOT	158	0	1.00	1.00	1.00	1.50

Cluster Analysis

Cluster analysis was conducted in SPSS (25.0) to identify student motivation profiles from the seven constructs of the AMS. Both hierarchical and two-step cluster analyses were conducted to provide the most stable solution. A hierarchical approach using Ward's linkage method and squared Euclidean distance as the similarity measure was first taken to explore the potential number of clusters represented in the data (Moreno-Murcia et al., 2013). Agglomeration coefficients from the hierarchical analysis were examined, and the percentage change in coefficients indicated sizable change in heterogeneity from one to two clusters. However, little change in heterogeneity occurred from two to three clusters and beyond.

A two-step cluster analysis was then performed using the median scores for the constructs. The two-step cluster analysis was used with a distance measure of log-likelihood, a clustering criterion of Akaike's information criterion and SPSS set to automatically determine the number of clusters. Two clusters were identified with a fair cluster. Inspection of the predictor importance for the two-cluster solution revealed no swamping variables. An additional two-step cluster analysis was run to check for model stability and reliability. The additional check was made by forcing SPSS to create three clusters with a Euclidean distance measure. Cluster quality degraded with the three-cluster solution. Inspection of the predictor importance for the three-cluster solution revealed amotivation to be a swamping variable; therefore, the two-cluster solution was retained.

Profile labels were created by examining the clusters and identifying explanatory variables to profile the clusters (see Figure 1).

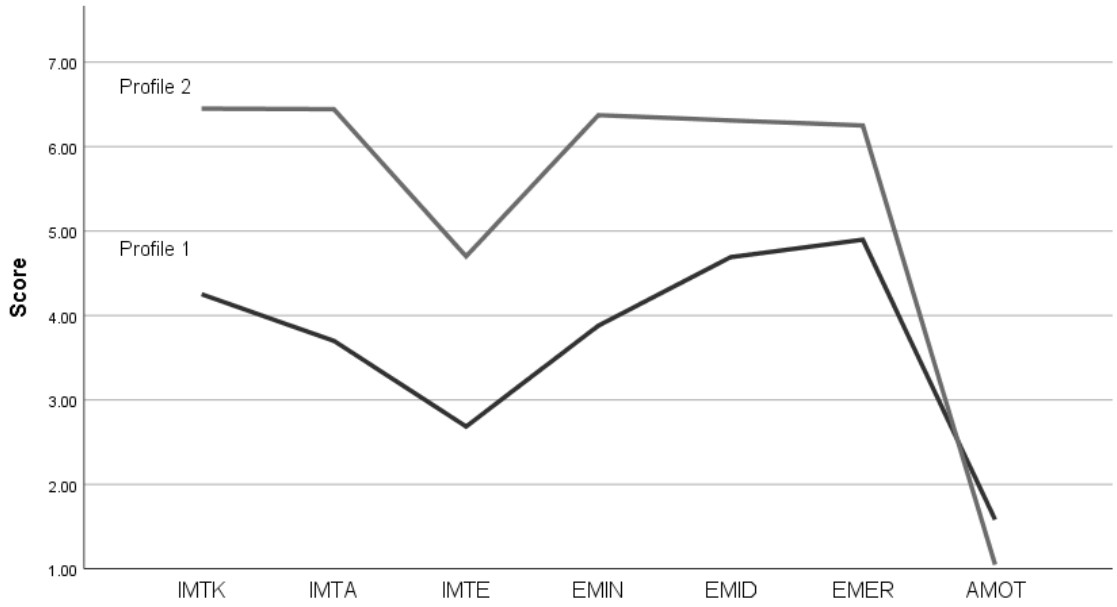

Figure 1. Graphical representation of cluster classification from two-step cluster analysis of AMS median scores in SPSS (25.0).

The first cluster (Profile 1) represented 108 students (68.4%) with lower levels of all motivation forms except amotivation. Relatively, Profile 1 had lower levels of the internal motivation forms of IMTA and EMIN and higher levels of the external motivation forms of EMID and EMER compared to Profile 2. Therefore, Profile 1 was qualitatively labeled as "externally motivated." The second cluster (Profile 2) represented 50 students (31.6%) with higher levels of all motivation forms compared to Profile 1, except amotivation. However, amotivation was still low for Profile 2. Relatively, Profile 2 had higher levels of the internal forms of motivation of IMTA and EMIN and lower levels of the external motivation forms of EMID and EMER compared to Profile 1. Therefore, Profile 2 was qualitatively labeled "internally motivated." Profile assignments (i.e., 1 and 2) were ordered by increasing level of self-regulation (i.e., from "external" to "internal" forms of regulation).

A Mann-Whitney U test was run to determine whether the differences between the motivational profiles scores on all seven SDT constructs were significant. Distribution of the scores for Profile 1 and Profile 2 were not similar, as assessed by visual inspection. IMTK scores for Profile 1 (mean rank = 57.92) were statistically significantly lower than for Profile 2 (mean rank = 128.12), U = 5,031, z = 8.784, p < .0005. IMTA scores for Profile 1 (mean rank = 56.25) were statistically significantly lower than for Profile 2 (mean rank = 129.73), U = 5,212, z = 9.444, p < .0005. IMTE scores for Profile 1 (mean rank = 62.89) were statistically significantly lower than for Profile 2 (mean rank = 115.37), U = 4,494, z = 6.747, p < .0005. EMIN scores for Profile 1 (mean rank = 57.57) were statistically significantly lower than for Profile 2 (mean rank = 128.86), U = 5,068, z = 8.904, p < .0005. EMID scores for Profile 1 (mean rank = 63.70) were statistically significantly lower than for Profile 2 (mean rank = 113.62), U = 4,406, z = 6.449, p < .0005. EMER scores for Profile 1 (mean rank = 66.66) were statistically significantly lower than for Profile 2 (mean rank = 107.24), U = 4,087, z = 5.254, p < .0005. AMOT scores for Profile 1 (mean rank = 86.38) were statistically significantly higher than for Profile 2 (mean rank = 64.65), U = 1,958, z = -3.546, p < .0005.

Profile Membership and Gender

A chi-square test of independence was conducted between motivational profile membership and gender. All expected cell frequencies were greater than five. There was a statistically significant association between motivational profile membership and gender, $\chi 2(1) = 5.041$, $p = .025$. The association was small to medium in strength (Cohen, 1988), Cramer's V = .179. More males than expected fell into the lower motivational profile, and more females than expected fell into the highly motivated profile. The four standardized adjusted residuals are reported in Table 2.

Table 2
Crosstabulation of Motivational Profile Membership and Gender

	Motivational Profiles	
	Lower Motivation	**Highly Motivated**
Gender		
Male	76 (2.2)	26 (-2.2)
Female	32 (-2.2)	24 (2.2)

Note. Adjusted residuals appear in parentheses below observed frequencies.

Profile Membership and Age

A chi-square test of independence was conducted between motivational profile membership and age. Only 70% of the expected cell frequencies were greater than five. Specifically, age categories 18–24 and older than 54 had cell counts less than five. There was not a statistically significant association between motivational profile membership and age, $\chi 2(4) = 2.831$, $p = .586$. The five age categories were then collapsed into two categories (18–34 and 35 or older). All expected cell frequencies were greater than five. There was still not a statistically significant association between motivational profile membership and age, $\chi 2(1) = 2.777$, $p = .096$.

Discussion

For-profit universities have increased accessibility to higher education, which has increased overall enrollment in higher education (Institute of Education Sciences, 2017). However, only 23% of bachelor's degree-seeking students at for-profit universities persist to graduate within six years (Institute of Education Sciences, 2017). Researchers have studied student cognitive attributes at for-profit institutions; however, little attention has been given to the noncognitive characteristics that may promote or hinder persistence to graduate (Carroll, 2016). Given the links between motivation and important outcomes in other academic settings (Atalay et al., 2016; Ghiasvand et al., 2017; Kriegbaum et al., 2016) and the low graduation rates at for-profit institutions, the current study investigated bachelor's degree-seeking students' motivations for graduating within six years at a for-profit university.

Results indicated two motivational profiles for the students attending a bachelor's degree program at an online, for-profit university: internally and externally motivated. Participants 25 years of age or older characterized 96.8% of the sample, and most students (68.4%) had an externally motivated profile. Results support a previous study where students reported mainly extrinsic reasons for attending school (Taylor et al., 2014). However, results contradict Quiggins

et al.'s (2016) research, which found nontraditional students to have higher levels of intrinsic motivation than extrinsic motivation.

It is also contrary to Knowle's (1984) assumption of andragogy that argues adult learners are more intrinsically motivated to learn. Previous studies using the tenets of SDT to develop motivational profiles in high school (Paixao & Gamboa, 2017), military (Gillet, Becker, Lafreniere, Huart, & Fouquereau, 2017), work (Howard, Gagne, Morin, & Van den Broeck, 2016), and traditional university (Kusurkar, Croiset, Galindo-Garre, & Cate, 2013) settings with differing results demonstrate that motivational profiles are most likely specific and unique to the context. These findings imply that students at for-profit universities may have different motivations than students in other academic settings (Malone, 2014; Quiggins et al., 2016).

Only 31.6% of the students in this study were internally motivated to achieve a bachelor's degree within six years at the online, for-profit university. This percentage coincides with the graduation rates of 31% at this university (National Center for Education Statistics, 2015). This parallel might help explain the low graduation rates from a bachelor's degree program at the for-profit university. Self-regulation occurs with intrinsic motivation, rather than with extrinsic motivation (Deci & Ryan, 1985; Ryan & Deci, 2000). Approximately two thirds of bachelor's degree-seeking students were found to have high levels of external regulation. External regulation is the most extrinsic form of motivation. Extrinsic motivation can be useful in helping students get started and in achieving short-term goals. However, extrinsic motivation may not be sustainable for long-term goals. If students are externally motivated (e.g., by a better paying job, more money), they may become disinterested in or even resentful of the actions they have to take toward to the goal (Ryan & Deci, 2000). These feelings may lead to delaying education or dropping out altogether, especially since the goal takes years to achieve. Stopping out, dropping to part-time, and withdrawing from classes have been identified as reasons for students failing to complete degrees even after years of attendance (Donhardt, 2013). Intrinsic motivation is needed for long-term goals, such as earning a degree that takes four to six years of work. Intrinsic motivation is the "prototype" of self-motivated behavior (Ryan & Deci, 2017).

Gender played a role in motivation profile membership. Approximately 75% of male students were externally regulated compared to 57% of female students. This result explains a significant association in motivation level and gender. Proportionally, more males were extrinsically motivated in this particular online educational setting. Previous research (Kimmel, Gaylor, & Hayes, 2014) found that adult learners differ by gender in their motivation to attend college. Specifically, males were found to be driven to obtain higher education by career retention and financial gains—externally regulated behavior. There was no association between motivation profile membership and age. This result is not surprising since more than 96% of the sample was over 25 years of age. However, when profiles were collapsed into two categories (i.e., 18–34 and 35 or older), there was still no association. This implies that age played no role in the high levels of student external regulation in this educational setting.

The results of this study add to the growing body of research supporting the multidimensional nature of motivation as proposed by SDT (Boiche & Stephan, 2014; Chemolli & Gagne, 2014; Howard, Gagne, Morin, & Forest, 2016; Howard, Gagne, Morin, & Van den Broeck, 2016). Students experienced a range of motivation types occurring in varying degrees across the SDT continuum of self-regulation. In fact, students had multiple forms of motivation occurring at once regardless of motivational profile. In both motivational profiles identified in the current study, students had high levels of intrinsic motivation to know, extrinsic motivation – identified, and external regulation. These combinations imply students had multiple reasons for

attending school at the for-profit university. For example, students might be pursuing a bachelor's degree because they want to advance their career (external regulation), feel it is important to their family (extrinsic motivation - identified), and enjoy learning (intrinsic motivation - to know). However, unlike previous studies (Howard, Gagne, Morin, & Van den Broeck, 2016; Lindwall et al., 2017), an amotivational profile was not identified. An amotivated profile might have helped explain a lower graduation rate at the online, open admission university. It is possible that students identified as amotivated may not be attending university for the right reasons (Tighe, 2013). The absence of an amotivated profile does not automatically mean that one did not exist. Due to the voluntary and nonincentivized nature of the study, it is logical that students who lack motivation may not have participated in the study.

Limitations

There were limitations in this current study. The low response rate in this study could contribute to potential nonresponse bias. Surveys with lower than 50% response rates may not be representative of the population (Leedy & Ormrod, 2016). In fact, participants were primarily White, male, nontraditional students. Neither hierarchical nor two-step cluster analysis uses weights in SPSS (25.0) procedures, so the sample was not weighted, which could have helped the sample more closely represent the population. However, the careful data collection, appropriate statistical analysis, and replicability of this study support its internal validity. Over 60% of students attending online schools are White, and 25% of those students are male (Clinefelter & Asianian, 2017). While caution should be taken in generalizing these study results to the entire online population (Yimeng, Kopec, Cibere, Li, & Goldsmith, 2016), inferences to this subpopulation would be reasonable.

Recommendations

In contrast to previous reports (Malone, 2014; Quiggins et al., 2016) and adult learning theory (Knowles, 1984), the findings in the current study revealed most students at the online, for-profit university had high levels of external motivation. Recent reports have contended that online students attend school for the external reasons of transitioning to new career, advancing in their career, or increasing wages (Clinefelter & Asianian, 2017). Only 11% of online students attend to get the internal satisfaction of learning and completing a degree (Clinefelter & Asianian, 2017). Similarly, Vanslambrouck, Chang, Tondeur, Phillipsen, and Lombaerts (2016) found the main motives for adult learners in a blended learning environment were linked to controlled motivation. While researchers have studied graduation rates (Gresham, Thompson, Luedtke-Hoffmann, & Tietze, 2015; Horn & Lee, 2016) and student persistence (Claybrooks & Taylor, 2016; Lipe & Waller, 2013) at for-profit institutions, there is dearth research on student motivation. It is plausible that students in this setting have different motivations than students in other settings. Therefore, further research on student motivation in the same context of a for-profit undergraduate setting is recommended.

Overall, SDT appears to offer a theoretical framework for understanding the complex nature of student motivation. The results of this study indicated two distinct motivational profiles: externally motivated and internally motivated. Results support the argument that multiple forms of student motivation coexist, not just the dichotomous view of intrinsic versus extrinsic motivation (Howard, Gagne, Morin, & Van den Broeck, 2016; Liu et al., 2014; Wang et al., 2016). Students in this study had complex motivational profiles, with forms of external regulation and extrinsic motivation alongside more self-determined forms of motivation. Based on these results, it is recommended that future research adopt the person-centered approach in investigating student motivation (Chemolli & Gagne, 2014) in the for-profit setting.

Previous research has found that motivation is a dynamic state that may change over time (Orsini, Binnie, Fuentes, Ledezma, & Jerez, 2016). In fact, research has shown that in the online environment, students who start with lower motivation forms further degrade over time (Fryer, Bovee, & Nakao, 2014). Furthermore, Taylor et al. (2014) found that intrinsic motivation was the only motivation form to consistently positively associate with academic achievement over time. In addition to continued research using a person-centered approach, a longitudinal study using the AMS is recommended. Course designers and instructors could also use the AMS survey tool to measure student motivation at the beginning and throughout a student's academic career. Knowing the motivations of students means that instructors and institutions can act to maintain higher motivation levels throughout a program.

Interestingly, the percentage of students with high extrinsic motivation coincided with the study site's nongraduation rates. It is possible that students with external regulations could represent an at-risk student population for which interventions and best practices could be used to increase graduation rates in bachelor's degree programs. Motivation is a key factor in online student persistence (Lucey, 2018). Lack of interaction has been found to contribute to lower motivation in online students (Lucey, 2018). It is recommended that course designers and instructors develop online courses to increase opportunities for student–student and student–teacher interactions. For example, send a personal message when the course begins, create introductory activities, provide opportunities for learner interaction (e.g., study groups and shared portfolios), and encourage sharing through social media (Briggs, 2015). Autonomy-supportive instructional design and teaching strategies are recommended to enhance intrinsic forms of motivation (Ryan & Deci, 2017). Autonomy-supportive classrooms provide students with rationales, choices, and opportunities to take the initiative and responsibility in directing the learning experience (Ryan & Deci, 2017). For example, Lucey (2018) found when courses and materials were relevant to student careers and real-world situations, they were motivated to persist. Another approach is to use Appreciative Inquiry to increase intrinsic motivation. Appreciative Inquiry is a philosophical approach to curriculum and instruction design that allows students to talk about their successes and actively engage in conversations about what works in any given situation. This approach dismisses the notion that students are passive receptors of information and embraces the concept that students are co-creators of information and learning experiences (Assudani & Kilbourne, 2015). Appreciative Inquiry has proven to significantly increase intrinsic motivation in online instruction (Johnson, 2014; McQuain, Neill, Sammons, & Coffland, 2016). Designers and instructors can apply this approach in almost any area of study with open-ended questioning, creative problem-solving assignments, and group collaboration projects.

Conclusions

The first goal of this study was to develop student motivational profiles based on the constructs of SDT from the AMS. One hundred and fifty-eight bachelor's degree-seeking students at a 100% online, for-profit university participated in a cross-sectional, anonymous, online survey. A combination of person-centered and variable-centered approaches was used to analyze the quantitative data collected. Cluster analysis identified two unique student motivational profiles based on the constructs from SDT: an "externally motivated" profile with higher levels of external forms of self-regulation and amotivation relative to an "intrinsically motivated" profile with higher levels of intrinsic forms of self-regulation and lower amotivation. Similarly, Moreno-Murcia et al. (2013) identified two motivational profiles in physical education under the tenets of SDT using cluster analysis.

In conclusion, the present study contributes to the growing body of literature (Chemolli & Gagne, 2014; Howard, Gagne, Morin, & Van den Broeck, 2016; Liu et al., 2014; Wang et al., 2016) supporting the differentiation of motivation under the tenets of SDT (Ryan & Deci, 2017). The fact that students in this study had multiple forms of extrinsic and external regulation suggests research should continue examining the dynamic forms of bachelor's degree-seeking students at for-profit institutions as a method of investigating the problem of low graduation rates. In the meantime, practitioners should be aware of the important role they play in influencing learner motivation in the online, for-profit setting. Increasing efforts in curriculum design and instruction to promote more autonomy-supportive forms of education could lead to more intrinsic forms of motivation, which have been shown to buffer less self-determined types of motivation (Hartnett, 2016).

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Appendix A

Academic Motivation Scale (AMS-C 28) College (CEGEP) Version

Using the scale below, indicate to what extent each of the following items presently corresponds to one of the reasons why you go to college.

Does not correspond at all		Corresponds a little		Corresponds moderately	Corresponds a lot	Corresponds exactly
1	2	3	4	5	6	7

WHY DO YOU GO TO COLLEGE?

1. Because with only a high-school degree I would not find a high-paying job later on.
2. Because I experience pleasure and satisfaction while learning new things.
3. Because I think that a college education will help me better prepare for the career I have chosen.
4. For the intense feelings I experience when I am communicating my own ideas to others.
5. Honestly, I don't know; I really feel that I am wasting my time in school.
6. For the pleasure I experience while surpassing myself in my studies.
7. To prove to myself that I am capable of completing my college degree.
8. In order to obtain a more prestigious job later on.
9. For the pleasure I experience when I discover new things never seen before.
10. Because eventually it will enable me to enter the job market in a field that I like.
11. For the pleasure that I experience when I read interesting authors.
12. I once had good reasons for going to college; however, now I wonder whether I should continue.
13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.
14. Because of the fact that when I succeed in college I feel important.
15. Because I want to have "the good life" later on.
16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.
17. Because this will help me make a better choice regarding my career orientation.
18. For the pleasure that I experience when I feel completely absorbed by what certain authors have written.
19. I can't see why I go to college and frankly, I couldn't care less.
20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.
21. To show myself that I am an intelligent person.
22. In order to have a better salary later on.
23. Because my studies allow me to continue to learn about many things that interest me.
24. Because I believe that a few additional years of education will improve my competence as a worker.
25. For the "high" feeling that I experience while reading about various interesting subjects.
26. I don't know; I can't understand what I am doing in school.

27. Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.
28. Because I want to show myself that I can succeed in my studies.

Note. The AMS is a widely used (validated) and open permission scale. © *Robert J. Vallerand, Luc G. Pelletier, Marc R. Blais, Nathalie M. Brière, Caroline B. Senécal, Évelyne F. Vallières, 1992.*

KEY FOR AMS-28

2, 9, 16, 23: Intrinsic motivation - to know
6, 13, 20, 27: Intrinsic motivation - toward accomplishment
4, 11, 18, 25: Intrinsic motivation - to experience stimulation
3, 10, 17, 24: Extrinsic motivation - identified
7, 14, 21, 28: Extrinsic motivation - introjected
1, 8, 15, 22: Extrinsic motivation - external regulation
5, 12, 19, 26: Amotivation

Professional Development: Teachers' Attitudes in Online and Traditional Training Courses

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Abstract
Humans have a basic need to be constantly engaged in learning. The learning process, however, has undergone interesting changes as a result of the technological revolution, such as the advent of online learning. Technological changes in learning have also affected professional development courses. The purpose of this study is to compare attitudes among teachers enrolled in online and traditional training course in "Pisgah" teaching staff development centers in Israel. This study was conducted using a quantitative method. The study population included 495 teachers. The findings indicated four factors related to teachers' attitudes: Effectiveness and Application, Environment, Course Assignments, and Attitudes towards ICT (information and communication technology). Significant differences were found in the Environment factor and the Attitudes towards ICT factor between online and traditional training, in favor of online training. A multi-regression analysis found that the effectiveness of a course can be explained by the Environment, Course Assignments, and Attitudes towards ICT factors.

Keywords: professional development, online learning, technology acceptance model (TAM)

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Professional Development: Teachers' Attitudes in Online and Traditional Training Courses

Technological development has affected the educational system in general and professional development training programs in particular. Both traditional (face-to-face) and online training programs have undergone significant changes. In online courses using information and communication technology (ICT), there is no face-to-face relationship between the lecturer and the trainee or between members of the trainee group. In the field of online training, valuable insights can be provided to lecturers by examining attitudes of trainees pertaining to teaching methods, quality of teaching, and coping with ICT. This study compares attitudes of trainees in online courses with those of trainees in traditional training courses.

Professional Development

Recent trends in teachers' professional development stem from an increased understanding of the importance of the teacher's role, which influences the school, improves

the quality of teaching, and influences students in various aspects of their lives. In addition, teachers are the most important factor in their students' achievements (Gerard, Varma, Corliss, & Linn, 2011; Sanders & Rivers, 1996). Professional development for teachers can take many forms, including university courses, local and national conferences, workshops, and specialized institutions. Recently, momentum has gained among communities and local groups of teachers who emphasize professional development and view it as a social and interactive process. These groups provide participants with tools for growth and professional development (Desimone, 2011).

Advantages of Professional Development. Professional development provides a wide range of interactive activities designed to improve teachers' professional knowledge, skills, and teaching practices, and to contribute to their personal, social, and emotional growth (Avidav, 2000). In addition, according to Darling-Hammond (1998), professional development courses help teachers face a number of challenges. The courses give them an in-depth understanding of the academic and learning materials. They provide teachers with tools and skills to develop their students' motivation and to present learning materials in an experiential and interesting manner. The courses expand teachers' knowledge in the fields of developmental psychology and learning disabilities. There are professional development programs that focus on specific challenges and situations that demand special training of teachers. For example, the trend of "mainstreaming" or integrating special needs students into regular classrooms, which has become prevalent in recent years, has increased the need to provide guidance and appropriate tools to teachers in these classes. One program trains teachers to integrate children with behavioral disorders into the classroom by helping teachers improve and practice their skills in interacting with the child. This has yielded a high success rate of integration, in comparison to situations in which the teacher did not take part in such a training course (Webster-Stratton, 1998).

Given the prevalence of technology in modern life, there has been a trend towards developing professional training courses that focus on expanding teachers' technological knowledge. Research that examined professional training courses in technology, in which thousands of science teachers participated, found that ongoing training courses of more than a year brought about significant improvement in the achievements of participating teachers' students (Gerard et al., 2011).

Pisgah Centers

In Israel, a system of teaching staff development centers operates under the auspices of the Ministry of Education's Department for Teaching Staff Development. The centers are known as "Pisgah" Centers, from the Hebrew acronym. Pisgah Centers are designed to deliver professional development programs to teachers. The Department is responsible for formulating policy for professional development, guiding and assisting Pisgah Centers in fulfilling their mission, managing and supervising the centers, and operating learning frameworks for the staff in these centers. Control and supervision of the centers is carried out by a team from the Pisgah Center and the Department for Teaching Staff Development.

A key principle underlying Pisgah Centers is continuity. They emphasize the importance of continued learning, advancement of knowledge, and development of professional skills throughout a teacher's professional life. The goals of the professional development program at Pisgah Centers are to expand teachers' knowledge, deepen their understanding of teaching and learning processes, develop new teaching methods, and perfect skills to advance their performance and their students' achievements. These goals assume the need for continuous education (Avidov-Unger, 2013).

To achieve these goals, local Pisgah Centers offer training courses, seminars, meetings with teachers, discussion groups, guidance, and so forth. These activities are directed by a staff

of academic professionals and pedagogic counselors. The training courses and learning program are conducted in different areas of the country. They include in-depth professional knowledge of educational materials that the teachers transmit, teaching skills, and issues relevant to teaching. The training courses utilize a wide variety of teaching and learning tools aside from books, including a didactic data base, ICT, educational games, and videos. In addition, Pisgah Centers offer after-hours ongoing guidance and advice to teachers participating in their programs, such as observation in the field, whose purpose is not evaluation but development and empowerment of the teachers (Gutman, 2011).

Online Learning

Use of computer and Internet technologies for teaching purposes has increased dramatically (Cole et al., 2017; Halverson & Smith, 2010; Kontos, 2015; Sela, 2005; Tynan, Ryan, & Lamont-Mills, 2015). This gave rise to the possibility of developing online courses (Anderson & Dron, 2011). Online courses allow a large audience of learners to receive high-quality education on a wide variety of subjects. The main attributes of online learning are use of technological media, physical separation between teacher and pupil, and two-way communication (Fraj-Hussein, Barak, & Dori, 2012; Sela, 2005). In addition, online learning offers a differential approach to categories of learners who have specific training and individual needs (Tudor, Stan, & Paisi-Lazarescu, 2015). The online learning environment enables individual and collaborative work supported by a variety of tools and learning methods. Reducing the student's dependence on the teacher as a source of knowledge highlights the central contribution of online tools to facilitating social interaction in a learning environment (Beldarian, 2006; Kumi-Yeboah, Dogbey, & Yuan, 2017; Simpson, 2006).

Advantages and Disadvantages of Online Courses

The effectiveness of online courses has been examined by numerous researchers (Fraj-Hussein et al., 2012; Johnson & Palmer, 2015; Kramer et al., 2015). Development of online learning enables learners to select the institutions of study according to the level of professionalism, without considering the distance of the institution from their residence (Sela, 2005). In addition, the time and place of study is determined by the learner (Hershkovitz & Kaberman, 2009). Time resources, transportation fees, and absence from work are minor considerations in the framework of online courses (Fraj-Hussein et al., 2012). Social relations are formed that may provide a basis for raising learners' self-confidence and self-image by exposing them to opinions and content via technological tools rather than face-to-face interaction (Fraj-Hussein et al., 2012; Sela, 2005; Tudor et al., 2015). Online courses make a significant contribution to collaboration during learning (Maborito 2004; Tudor et al., 2015).

Although there are many advantages to distance learning via online courses, there are reasons that some learners prefer traditional learning methods. They may feel isolated and disconnected in an online course. The lack of immediate and effective response to questions or tasks is frustrating for many learners (Fletcher & Bullock, 2015; Fraj-Hussein et al., 2012; Hershkowitz & Kaberman, 2009). The inability to use nonverbal communication like facial expressions or body language with the teacher or peers may diminish students' confidence (Drange & Roarson, 2015; Mabrito, 2004). For some students, the lack of contact with peers has a negative effect on learning (Kassandrinou, Angelaki, & Mavroidis, 2014). Technological problems may cause intense frustration, especially if there is not a possibility of enlisting the help of professionals. Online courses demand a high level of self-discipline (Drange & Roarson, 2015; Fraj-Hussein et al., 2012; Hershkowitz & Kaberman, 2009; Mabrito, 2004; Sela, 2005; Worley & Tesdell, 2009) and the digital text may be more difficult to read (Hershkowitz & Kaberman, 2009). In addition, there are conflicting opinions regarding the level of resources needed for online courses. There is a reduction of cost since there is no need for a physical place to teach the course. However, according to some researchers, the cost of

developing online courses is higher, therefore there is no savings of resources (Sela, 2005; Tynan et al., 2015; Worley & Tesdell, 2009).

Optimal integration of ICT into classrooms depends on teachers' thinking processes, beliefs, and their attitudes towards ICT (Sang, Valcke, Van Braak, & Tondeur, 2010). Buabeng-Andoh (2012) added that teachers need to be confident that the technology will make their teaching more interesting, easier to understand, more enjoyable for them and for their students, and will increase students' motivation. A path analysis found that perceived usefulness (PU) and perceived ease of use (PEU) were key determinants of teachers' attitudes towards ICT (Teo, 2010). The results showed that pre-service teachers' perceived ease of use had significant effects on perceived usefulness and attitudes to computers. In addition, three external factors were found to be significant in predicting pre-service teachers' attitudes to computer use: subjective norm, facilitating conditions, and technological complexity. If teachers have positive attitudes, they are more likely to integrate ICT into their teaching and learning processes (Buabeng-Andoh, 2012).

The Technology Acceptance Model. The success of online technology for professional development is dependent upon teachers' acceptance of online learning as an alternative to traditional face-to-face delivery (Smith & Sivo, 2012). Cheok and Wong (2015) argued that teachers' use of online courses and e-learning systems for instruction may be predicted by the flexibility, interaction, PU, and PEU of the courses. To prevent teachers from being deterred from building online courses, they need to be involved in the planning and evaluation of the instruction. Experience (including mistakes) provides a basis for learning activities. Teachers are most interested in learning subjects that have immediate relevance to their jobs or personal lives. Learning should be problem-centered rather than content-oriented. (Johnson, Wisniewski, Kuhlemeyer, Isaacs, & Krzykowski, 2012).

The Technology Acceptance Model (TAM), introduced by Davis (1989), is a theoretical model for predicting how an individual user comes to accept and use a given technology-based information system. It specifies causal relationships among external variables, beliefs, and attitudinal constructs, and actual usage behavior (Hubona & Kennick, 1996). It determines attitudes and behaviors through two major variables. The first is perceived usefulness (PU), which is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). The second is perceived ease of use (PEU), which is defined as "the degree to which a person believes that using a particular technology would be free from effort" (Davis, 1989, p. 320). Intention to use is one of the strongest predictors of technology usage behavior, as has been well established in the research literature (Davis & Venkatesh, 2004). Research on technology acceptance in the fields of information systems and engineering support the theory that PU and PEU are primary determinants of a user's intention to adopt a new technology (Smith & Sivo, 2012; Venkatesh, Morris, Davis, & Davis, 2003). For this reason, the TAM serves as an optimal model to measure teachers' intentions towards the adoption and continued use of online professional development.

By focusing on a small number of fundamental variables, the TAM effectively provides a framework to determine the effect of external factors on internal beliefs and intentions (Davis Bagozzi, & Warshaw, 1989). The TAM has been successfully expanded upon in several studies to suit numerous research objectives by adding variables such as user characteristics, self-efficacy, and organizational factors (Lee, Kozar, & Larsen, 2003; Pan, Gunter, Sivo, & Cornell, 2005). Perceived ease of use, perceived usefulness, and social presence were found to be significant determinants of teachers' intent to continue using online technology to meet their future professional development needs (Smith & Sivo, 2012). The incorporation of perceived usability into the TAM more influential in explaining TAM elements than its absence, thereby

supporting the importance, positive influence, and necessity of evaluating usability when investigating educational technology acceptance and usage behavior (Holden & Rada, 2011).

The purpose of the current study is to examine and compare attitudes of teachers who study in the framework of professional development offered through online asynchronous courses and those enrolled in traditional courses. The online asynchronous courses were conducted remotely using a distance learning system. Learners were not directly exposed to the lecturer, but only to the assignments the teacher sent to them. In the traditional courses, learning was in a classroom with the teacher and other learners.

Methods

The subjects in this research were teachers who received training within the framework of Pisgah Centers in Israel during the academic year 2015-2016 in either traditional courses or asynchronous online courses. The research was conducted using a quantitative method. Questionnaires were sent to all of the trainees at the end of the courses via Google Docs. Trainees were requested to complete the questionnaire as a requirement for completing the course. It was emphasized to the participants that the questionnaire was anonymous.

Study Population

The questionnaires were sent to 494 teachers who teach in a wide variety of educational institutions in Israel. Of these, 469 responded. These teachers received training in school and regional training programs. The study population was 14.3% male and 85.7% female. The distribution of seniority in years of teaching was as follows: 21.4% of the subjects had taught for 1-5 years; 19.8% taught for 6-10 years, 24.1% taught for 11-15 years, 23.6% taught from 16-24 years and 11.1% taught for 25 years or more.

Research Tools and Reliability

The statements in the questionnaire were written by teachers specializing in the field of teaching and the regional expert evaluation coordinators for professional development courses. This questionnaire was also used by Wasserman and Maymon (2017) who found the reliability of Alpha Cronbach for this questionnaire to be 0.948.

The questionnaire comprises two parts. The first part included 26 statements relating to teachers' attitudes towards the training. Examples of statements given in the questionnaire include: "The purpose of the course was realized," "I received tools for thinking in the course," and "There was a feeling of openness in the course." Respondents rated the extent to which they agreed with statements on a scale from 1 to 5, with 1 indicating "not at all," 2 indicating "to a slight extent," 3 indicating "to a moderate extent," 4 indicating "to a large extent," and 5 indicating "to a very large extent." The second part of the questionnaire included demographic data such as gender and seniority in teaching.

The independent variable in the study is the type of instruction (online or traditional). The dependent variables are teachers' attitudes to learning.

Data Analysis

Several statistical tests were conducted within the framework of the research using the SPSS program. A factor analysis was performed for the variable of teachers' attitudes towards training. Pearson correlations were calculated for the four factors found in this variable. A linear regression was calculated in order to predict the effectiveness of the learning using the factors Environment, Course Assignments, and Attitudes towards ICT. A T-test was calculated for independent models of the factors: Environment and Attitudes towards ICT for participants in online and traditional courses.

Ethics

The research questions were approved by the Pisgah Center director for use in the center and for development of plans on the basis of the findings. The research findings were transferred for data processing without any personal information that could identify teachers who answered the questionnaires.

Results

The factor analysis performed on data for the teachers' attitudes variable revealed four factors: Effectiveness and Application, Environment, Course Assignments, and Attitudes towards ICT, as shown in Table 1. It should be noted that one statement (number 8) was excluded because it loaded equally on two factors.

Table 1.
Factor Analysis for the Variable of Teachers' Attitude (N=496).

	Effectiveness and Application	Environment	Attitudes towards ICT	Course Assignments
I received tools and strategies in the training course.	.810			
The course gave me new knowledge.	.782			
The course helped me organize knowledge previously acquired.	.768			
I can use the knowledge I acquired during the course in my classroom.	.744			
The learning in the course was significant to me.	.74			
I received tools for thinking in the course.	.737			
The teaching methods in the course were varied and served as a model for work in the classroom.	.736			
The course was interesting.	.725			
I can develop and adapt teaching activities derived from the content of the course.	.699			
The theoretical background and the practical part of the study complemented one another.	.672			
The course was professional.	.639			
The purpose of the course was actualized in the course.	.615			
There was an atmosphere of attentiveness and openness.		.854		
A productive discourse developed among the members participating in the course.		.849		
I felt that they believed in my ability during the course.		.783		
The advisor answered the students' questions and responded to their needs.		.761		
There was an atmosphere conducive to learning during the course.		.721		
The advisor helped colleagues when they encountered difficulties.		.574		

Table 1. (cont.)
Factor Analysis for the Variable of Teachers' Attitude (N=496).

	Effectiveness and Application	Environment	Attitudes towards ICT	Course Assignments
The course website serves as a place for sharing and consultation between the members of the group.			.863	
During the course I was exposed to a variety of possibilities for integrating ICT into teaching.			.851	
I will know how to choose ICT tools that suit the learning, teaching, and evaluation process.			.844	
The advisor uploaded relevant materials to the course website.			.756	
The number of course assignments was reasonable.				.885
The level of the course assignments was reasonable.				.872
During the course there was non-frontal learning: self / in pairs / groups				.409
Eigenvalues	7.916	5.306	3.432	2.343
Rotation Sums of Squared Loadings	30.448	20.407	13.199	9.011
Alpha Cronbach Reliability	0.961	0.932	0.891	0.891
Mean	3.90	4.21	3.00	3.86
Std. Deviation	0.85	0.85	1.17	1.01

Pearson correlations calculated among the four factors found a significant positive correlation between environment and attitudes towards ICT ($r_p = 0.369$, $p < 0.05$) such that the higher the ratings given towards statements pertaining to attitudes towards the environment are, the higher the rating of statements pertaining to attitudes towards ICT will be. A significant positive correlation was found between Attitudes towards Environment and Effectiveness and Application ($r_p = 0.770$, $p < 0.05$) such that the greater the rise in attitudes towards the Environment are, the greater the rise in Attitudes towards Effectiveness and Application will be. A low positive correlation was found between Attitudes towards ICT and Course Assignments ($r_p = 0.320$, $p < 0.05$). A moderate positive correlation was found between attitudes towards Course Assignments and Effectiveness and Application ($r_p = 0.503$, $p < 0.05$).

In order to predict the effectiveness of the learning based on the factors Attitudes towards ICT, Environment, and Course Assignments, a multiple regression analysis was performed. The regression analysis showed that the effectiveness of the training can be explained on the basis of the following variables ($F_{3,492} = 378.664$, $p < 0.01$). The predictive variables explained 69.8% of the variance of the effectiveness of the study. Table 2 presents the results of the regression analysis.

Table 2.
Multiple Regression to Predict Effectiveness and Implementation of the Training (N=496).

Predictive factor	**B**	**β**	**t**	**Cumulative R^2**
Environment	0.549	0.550	18.231*	59.3
Course Assignments	0.222	0.265	8.955*	65.7
ICT	0.157	0.215	7.969*	69.6

*$p < 0.01$**

The results in Table 2 indicate that the factors Attitudes towards ICT, Environment and Course Assignments clearly explain the variable effectiveness in the training. We then examined the differences in the attitude of trainees who study in online courses and those who study in traditional courses.

Table 3.
T-Test for Independent Models of Factors: Environment and ICT between Online and Traditional Training Courses (N=496).

Factors		N	Average	Standard Deviation	T-Test	Significance
Environment	Online	74	4.29	1.08	-3.68	$p < 0.05$
	Traditional	422	3.80	.78		
ICT	Online	74	3.61	1.01	4.91	$p < 0.05$
	Traditional	422	2.90	1.17		

From Table 3 we see there was a significant difference in the Environment factor between attitudes of the trainees to online courses and traditional courses ($t = -3.683$, $p < 0.05$) in favor of the online courses. Attitudes of the trainees in the online courses towards environment were SD = 1.08, M = 4.29. Attitudes of the trainees in the traditional courses towards Environment were SD = 0.78, M = 3.8.

There was a significant difference in the ICT factor between attitudes of the trainees to online courses and traditional courses ($t = 4.91$, $p < 0.05$) in favor of the online courses. Attitudes of the trainees in the online courses towards ICT were SD = 1.01, M = 3.61. Attitudes of the trainees in the traditional courses towards ICT were SD = 1.17, M = 2.9.

Discussion

The research aim was to examine the differences in teachers' attitudes towards learning in online and traditional training courses. A significant difference was found in the Environment factor between attitudes of the trainees in online courses and traditional courses, in favor of the online courses. The Environment factor covers subjects' attitudes regarding the atmosphere of listening and openness, the ability to introduce productive discussion amongst colleagues in the training course, and the feeling that the instructors believed in the learners' ability. Researchers who characterize online learning have pointed to essential characterizations that influence the attitude towards environment in online courses (Fraj-Hussein et al., 2012; Sela, 2005; Tudor et al. 2015) such as communication between the lecturer and the learner (Fedynich, Bradley, & Bradley, 2015) and between the learner and others in the learning group. Other researchers note the importance of the lecturer's presence (Kelly, 2012; Sheridan & Kelly, 2010) and ability to provide answers to the individual needs of the learners. It appears that the learning environment is characterized by social connections, an atmosphere which increases students' self confidence and self-esteem, and the ability to voice opinions in an online forum rather than face-to-face (Tudor et al., 2015). In addition, there is a significant contribution of cooperation in the learning process (Mabrito, 2004). In contrast, when there are feelings of separation and loneliness, lack of immediate response (Hershkovitz & Kaberman, 2009) or lack of nonverbal cues from the teacher or other students such as facial expressions or body language, and an atmosphere that damages self-confidence (Drange & Roarson, 2015), the learning environment is characterized as poor.

In addition, a significant difference was found in the Attitudes towards ICT factor between attitudes of the trainees regarding online and traditional courses, in favor of the online courses. The statements used in the online technology factor correspond to the PU component

in the TAM model, which refers to a learner's belief that using online technology will improve his or her work (Davis, 1989). The statements in this factor relate to improving the teacher's work, for example: "I will know how to choose online tools that are suitable for the educational and appraisal process." In addition, learners who can keep up with the pace of technological development and are able to take advantage of it without outside support (Blau & Barak, 2011) achieve a higher rate of success (Wayne, Wingenbach & Akers, 2013).

Conclusions

The results indicate that in online training courses, there is a feeling of personal connection between the student and the lecturer, an atmosphere of listening and openness, and the lecturer can answer the needs of the individual student despite the lack physical presence in the same room.

Limitations of the Research

The primary limitation of this research is the lack of ability to generalize because of the relatively homogenous nature of the sample. Since all the respondents were teachers that studied in the same Pisgah Center, they may be similar to one another. Another limitation that needs to be considered is that since the questionnaire was linked to the completion of the course, the interviewees may have referred to their specific course of study and not necessarily to the nature of the course as online or traditional.

Recommendations

Based on the findings of this study, it is recommended that the education system emphasize the possibility of choosing between online and traditional learning in professional development courses. The education system should coordinate technological developments with educational policy so they will be able to use technology to advance the educational field, as indicated by the context of the findings between Attitudes towards ICT and Effectiveness and Application. There is no doubt that attention should be given to the disadvantages of ICT in adapting them to a population in which computer skills are not high. Additionally, it should not be overlooked that a high level of computerization is not yet applicable to many members of the teaching staff and that computer training courses or assistance of expert staff should be available as needed.

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Benefits of Online Teaching for Face-to-Face Teaching at Historically Black Colleges and Universities

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Abstract
Technology and distance education are on the rise in community colleges, four-year institutions, Ivy League colleges, research institutions, and technical colleges. One of the most significant phenomena occurring in Historically Black Colleges and Universities (HBCUs) today is distance education. Academic leaders can better implement professional development plans to promote online programs if they understand faculty perceptions about teaching online. This phenomenological research paper presents the results of 12 experiences of higher education faculty members at an HBCU who transitioned from a face-to-face teaching modality to a distance education instructional delivery and subsequently returned to the face-to-face classroom

Keywords: online, face-to-face, HBCU, teaching experience, higher education, phenomenology

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Benefits of Online Teaching for Face-to-Face Teaching at Historically Black Colleges and Universities

There is minimal research that has examined how HBCU instructors who go from the classroom online tend to learn new approaches—techniques and philosophies—that they bring back to the classroom (in one way or another). Teaching online changes instructors' perceptions and their teaching practices when they return to the traditional classroom (Stone & Perumean-Chaney, 2011). Although higher education enrollments continue to decline, distance education enrollments continue to grow. Most higher education institutions provide some form of distance education. According to Allen and Seaman (2016), the number of students taking all of their courses online in 2014 was in excess of 2.8 million. The percentage of college students taking at least one online course is at an all-time high of 33.5% (Allen & Seaman, 2015).

Faculty members at institutions of higher education who started their careers in the traditional face-to-face classroom tend to change their pedagogical approaches for use in online teaching (Baran, Correia, & Thompson, 2013; Duffy & Kirkley, 2004; McDonald, 2002). As they gain experience in the online environment, they often turn the approach around, changing methods that benefit the online environment to improve and enhance their face-to-face teaching (Scagnoli,

Buki, & Johnson, 2009; Stone & Perumean-Chaney, 2011). Therefore, it is important to consider and understand how college faculty who teach online perceive and describe their teaching practices and roles when they return to the traditional face-to-face classroom.

Review of Related Literature

In higher education institutions in the United States, enrollment in online courses continues to exceed growth in face-to-face courses (Allen & Seaman, 2013, 2014, 2015). Online higher education faculty are reviewing their perceptions about the new culture of learning and teaching. This leads teachers to challenge their beliefs, judgments, interpretations, assumptions, and expectations (Coppola, Hiltz, & Rotter, 2002; Lee & Tsai, 2010). Kreber and Kanuka (2006) noted online teaching is different from face-to-face teaching; however, faculty who do not receive professional development have a habit of carrying face-to-face educational practices to online environments. Teachers tend to transfer face-to-face approaches learned from their professors while in college to the traditional classrooms they teach in as they develop their expertise (Kreber & Kanuka, 2006).

According to Lokken and Mullins (2014), distance education administrators were asked to rank their greatest faculty challenges in the 2013 Instructional Technology Council (ITC) survey, and it was discovered that engaging in online pedagogy was a top concern for faculty. A major challenge is the necessary trial-and-error associated with the new technology features and functions (Moore & Kearsley, 2012). Higher education faculty members are presented with the challenge of moving from Web 2.0 to Web 3.0, interactive media, streaming video, constant real-time networks and active learning communities. The paradigm shift is from center stage, application of knowledge, to coach, facilitator, or guide.

Sheridan (2006) and Van de Vord and Pogue (2012) suggest faculty are concerned that online instruction is more time-consuming than traditional face-to-face instruction. According to Van de Vord and Pogue (2012), online courses include more time in and out of the classroom for the instructor. Sheridan (2006) noted that faculty members who teach online courses spend more time preparing and administering their courses than traditional faculty members do. Higher education faculty indicate that continuous individual email communication is another challenging factor (Sword, 2012). Lloyd, Byrne, and McCoy (2012) reported one of the most highly ranked concerns of faculty was time commitment.

Many HBCU faculty members are just starting to transition their face-to-face courses to the teaching-at-a-distance environment and need hands-on experience. Lack of comfort and/or proficiency with technology tools may have more to do with a lack of time and less to do with opposition (Thormann & Zimmerman, 2012). Building an online learning community; establishing netiquette; facilitating discussion, group work, and peer monitoring; and asserting the leadership role are crucial to effective communication and learning (Thormann & Zimmerman, 2012).

Theoretical Framework

To understand HBCU faculty's attitudes and perceptions about education and instruction when they return to the face-to-face classroom, Mezirow's (1991) transformative learning theory was used. The transformative learning theory is based on the principle that personal experience is an important part of the learning process and that the adult learner's interpretation of the experience creates meaning, which leads to changes in their behavior, beliefs and assumptions, values, associations, feelings, and mindset. When transformative learning occurs, a learner may

experience a paradigm shift that affects future experiences. With the rapid growth of online HBCUs, faculty members are re-examining their perceptions about the new culture of learning and teaching. This leads to teachers challenging their own beliefs, judgments, interpretations, assumptions, and expectations (Lee & Tsai, 2010).

Transformative learning is a "process of examining, questioning, validating, and revising our perspectives" (Cranton, 2006, p. 23). The theory has been used in teacher education fields, such as teachers' application of new professional development program models (Kabacki, Odabasi, & Kilicer, 2010), faculty members' use of technologies (Whitelaw, Sears, & Campbell, 2004), and a teachers' learning of new concepts (Gilbert, 2003). Kabachi et al. (2010) described transformative learning as "a process in which adults change their views and habits—which they have gained as a result of their experience" (p. 266).

Face-to-Face Versus Distance Education

According to Baran, Correia, and Thompson (2013) distance education is different from the traditional classroom method and, therefore, its own pedagogies must be developed. In a face-to-face classroom, an instructor is assumed to be a lecturer, and in an online classroom, the instructor is considered a facilitator (Ryan, Scott, & Walsh, 2010). A face-to-face classroom allows the instructor to be committed to just one block of time, provide structure and immediate feedback, teach with direct eye contact, and respond immediately to questions. An online classroom allows the instructor to organize online communication via emails, discussion boards, chats, and web conferencing. Researchers have reported "the teacher moves from being at the center of the interaction or the source of information to the 'guide on the side'" (Baran et al., 2013, p. 429). Additionally, instructors can establish learning activities, such as group work, through multiple rounds of communication and clarifications (Moore & Kearsley, 2012). A paradigm shift occurs from student-centered learning to instructor-centered or lecture-centered approaches in teaching in a distance education environment (Simonson et al., 2012). Higher order thinking is often lacking in online learning, and this may be because instructors attempt to transfer traditional classroom practices to online courses (Baran et al., 2013). Research has demonstrated that "universities staying current with technological innovations results in improved online course development outcomes and satisfaction" (Fish & Wickersham, 2010, p. 280). It is suggested that instructors remain current with advances in the field and to network with others who teach online courses within the same university or at other universities (Fish & Wickersham, 2010).

The Concern of Faculty Acceptance

Institutions of higher learning generally set the pace for educational innovation; however, some higher education faculty members are not convinced of the value and legitimacy of distance education. The Pew Research Center conducted surveys on adults in the community and college presidents on the educational value of online courses. While 51% of college presidents suggested that online courses provide equal value compared with face-to face courses, just 29% of the public suggested online courses offer the same value (Parker, Lenhart, & Moore, 2011). In 2003, chief academic officers reported that only 27.6% of their faculty members accepted the "value and legitimacy of online education" (Allen & Seaman, 2015, p. 21). By 2007, the percentage had risen to 33.5%, but in 2015 the rate was nearly back to where it had been in 2003: 28.0% of academic leaders said their faculty accepted the "value and legitimacy of online education" (Allen & Seaman, 2015).

McCoy (2012) reported that one of the most highly ranked concerns of faculty was time commitment. At the same time, Allen and Seaman (2012) found that 58% of 4,564 faculty members described themselves as filled more with fear than with excitement over the growth of

online courses within higher education. On the other hand, academic technology administrators are extremely positive about the expansion of online learning, with 80% reporting they have more excitement than fear (Allen & Seaman, 2012). As previously mentioned, when distance education administrators were asked to rank their greatest faculty challenges in the 2013 ITC survey, engaging in online pedagogy was a top concern (Lokken & Mullins, 2014). Also previously noted is that a major challenge is the trial and error associated with the features and functions of the new technology (Moore & Kearsley, 2012). The paradigm shift that has occurred removes teachers from center stage and the application of knowledge, to coach, facilitator, or guide.

The Role of the Instructor

With the growth of online education, the role of the instructor in higher education is changing. However, some higher education faculty members are resistant to teaching online because the demands are greater compared to face-to-face courses (Murphy, Levant, Hall, & Glueckauf, 2007). The roles of online instructors may be more complex than those of traditional instructors (Baran, Correia, & Thompson, 2013). Some higher education faculty members are resistant to teaching online because the demands are greater compared to traditional face-to-face courses (Murphy, Levant, Hall, & Glueckauf, 2007). According to Baran et al. (2013), distance education is different from the traditional classroom method and, therefore, its own pedagogies must be developed.

Benefits of Online Teaching for Face-to-Face Teaching

As McDonald (2002) noted, not only does teaching at a distance often prompt a closer examination of teaching practices, but online teaching has the potential to enhance face-to-face teaching. McDonald (2002) suggested that "in addition to reaching learners at a distance, distance education formats are increasingly being used to enrich, improve, and expand face-to-face instruction, thus resulting in a 'convergence' of educational practices" (p. 12). Best practices applied in the online classroom can be transferred to the face-to-face classroom to improve student learning in any environment (Burgess, 2015). Some of the best practices Burgess returned to the face-to-face classroom with were online discussion boards, course content videos, e-communication, and web conferencing tools. In her face-to-face classroom, she uploaded material, provided PowerPoint slides, and shared feedback through a learning management system (LMS). Upon her return to the face-to-face classroom, she incorporated online discussion to improve learning by allowing students to reflect on readings, offer productive starting points for class conversations, and articulate their thoughts prior to group discussions. One successful component Burgess used in her online class and transferred to her face-to-face class was a weekly checklist. The most valuable and effective transferable skill Burgess noted was web conferencing because of the flexibility it provided for both the student and the instructor. In her face-to-face course, she now offers the option to meet in person, online, or both.

Scagnoli, Buki, and Johnson (2009) conducted a qualitative cross-case analysis of studies of the influence of online teaching on classroom teaching practices. They examined several articles that were cross-analyzed by categories, including transfer of pedagogical strategies back to the classroom, increased readiness to integrate technology in the classroom, and openness to alternative ways of interaction. Scagnoli et al. (2009) found that instructors come back to the classroom with new pedagogical strategies for instruction and online presentations, the use of audio and video files, discussion forums and chat sessions, and submission of assignments via an LMS. Many face-to-face instructors benefit from using an LMS by uploading and updating course material. Faculty realize that some of the same approaches used in online classes can be used to engage students' learning in face-to-face classes. Scagnoli et al. (2009) also suggested that faculty

teaching at a distance returned to the classroom eager to integrate technology in their face-to-face course. When instructors step out of their comfort zone of the face-to-face classroom to participate in teaching at a distance, they obtain new knowledge and proficiencies (Cho & Berge, 2002). In their study, instructors who had taught online were more conscious of their teacher roles and teaching strategies. Some instructors became more acquainted with the use of technology, new pedagogical techniques, unique forms of accountability, and collaborative learning practices.

Fetzner (2003) offered lessons learned about transferring teaching practices from distance education to face-to-face classrooms with the Monroe Model framework. The model addresses how faculty bring lessons learned from an online environment to a face-to-face environment. When higher education faculty experience positive outcomes when teaching online, it promotes a change in opinions, attitudes, perceptions, and understanding of distance education. Stone and Perumean-Chaney (2011) offered lessons learned with the development and delivery of an online statistics course. The course was designed to be delivered in weekly modules, and each module began with an overview. The module overview was concise, organized, and included specific goal-directed activities, with students knowing what each module covered. When the format of using weekly modules for the presentation of material and the assignment of homework was brought back into the traditional classroom, Stone and Perumean-Chaney (2011) found that student confusion was minimized, leaving more time for additional activities to enhance student learning. Additionally, Stone and Perumean-Chaney (2011) discovered that when instructors returned to the face-to-face statistics classroom, they had adopted new technologies, created new ways for students to submit their work, learned new approaches for enhancing student engagement, and improved student learning.

Method

The phenomenological approach for this study was selected to understand common and/or shared experiences (Creswell, 2013). The goal of this research was to explore the experiences of higher education faculty members at an HBCU who transition from the online classroom to the face-to-face classroom. The central research question of this study was this: How does teaching at a distance affect the attitudes, perspectives, and practices of higher education faculty when they return to face-to-face teaching? Additionally, three subquestions guided this study:

1. How are instructors' perceptions of their role and their teaching practices altered when they return to instruction in a face-to-face classroom?

2. What communication strategies do instructors transfer from online to face-to-face teaching?

3. What changes in face-to-face instruction can be attributed to the experience of online teaching?

Sampling

The participants for the study were selected using purposeful sampling of volunteers with face-to-face and online teaching experience, across different disciplines. Participants were full-time and adjunct faculty members who were engaged in the development and teaching of online courses at a four-year Historically Black University in Virginia. The university's 2017 *Fact Book* shows a headcount of 5,305; 83% of its students are Black, 5.1% are White, and 11.9% are classified as other (includes international and unknown). Sixty-four per cent of the students are female, and 36% are male. In addition to serving a high proportion of students of color, many

students are first-generation college students. The university offers 178 online courses. Participants were selected from the 112 faculty members who were certified to teach online courses. The university offers seven undergraduate online degree programs and five graduate online degree programs. The award of the Quality Standards Certification from the United States Distance Learning Association is a solid accomplishment for the university distance education programs, its faculty, staff, and students.

Data Collection

Data for the project was collected in spring 2017. IRB approval was obtained prior to data collection. A semistructured interview protocol (Appendix A) was followed to uncover the underlying themes related to this phenomenological study (Merriam, 2009). A subject-matter expert in the field of distance education was asked to review the protocols to verify content validity. Two nonparticipating faculty members were asked to pilot test the questions for feedback and validity prior to use.

The interview consisted of open-ended questions with prompts to elicit responses from all participants. A digital recorder was used to collect data, and field notes were taken. It was also important to maintain a balance between descriptive notes and reflective notes, such as hunches, impressions, and feelings (Groenewald, 2004). The memos (or field notes) were dated so they could be later correlated with the data (Miles & Huberman, 1984). Three types of field notes were utilized: (a) theoretical notes (TN)—attempts to derive meaning as the researcher thinks or reflects on experiences; (b) methodological notes (MN)—reminders, instructions, or critiques on the process; and (c) analytical memos (AM)—end-of-a-field-day summaries or progress reviews.

There were nine demographic questions and nine questions about the participants' perspective on education and instruction when they returned to the face-to-face classroom after teaching online. The interview lasted approximately 60 minutes. An initial precoding process was used to identify repetitive terms, which was followed by reviewing, analyzing, and classifying the themes according to the appropriate research questions (Saldana, 2013).

Data Analysis

This study investigated the experiences of 12 participants. According to Doyle (2006), when determining the sample size for a qualitative study, it is more important to identify participants who are more knowledgeable than to include a large population. A smaller sample size with a rigorous analysis was sufficient because the study was of an exploratory nature (Daniel, 2012). Saturation is the point in the data collection process where the information becomes redundant (Bogdan & Biklen, 2007, p. 69). Guest, Bunce, and Johnson (2006) discovered that saturation usually occurs within the first 12 participants. After 12 interviews, the answers to the questions become redundant, and no new data are offered (Guest, Bunce, & Johnson, 2006).

The precoding process started with color-coding identified words and phrases that were "worthy of attention" (Saldana, 2013, p.19). Then open coding, also known as *initial coding*, was utilized to break down the data. The codes and code definition were determined and organized from selected terms, words, and phrases for comparison and contrast (Corbin & Strauss, 1998). The categories that began to emerge were reexamined, and a set of themes emerged. These themes were reviewed, analyzed, and classified according to the appropriate research questions with which they were associated.

The descriptive narratives, gathered during individual interviews, were essential, as they provided detailed phenomenological descriptions of the transition experience of HBCU faculty members. The common experiences, explaining the consistency of responses for each participant

and the number of times the responses appeared in the transcriptions, were tallied. Once the common experiences were determined, all the transcriptions were studied to determine the number of frequency responses related to each theme. Then, the number of times each common experience appeared within the transcriptions was totaled.

To establish trustworthiness, triangulation was used. Triangulation is using more than one method to collect data on the same topic to verify the findings (Yin, 2014). This is a way of ensuring the validity of research. The study used face-to-face interviews, field notes, interview transcripts, and recordings to increase the study's credibility and help ensure that the findings were accurate (Creswell, 2012).

Participants were able to view the transcribed interviews and the established themes. This allowed participants the opportunity to correct any misunderstanding to ensure that the information accurately described their viewpoints and to share their opinions on the accuracy of the findings (Creswell, 2012).

Results

Based on the results relative to all four research questions, three themes emerged from this study: (a) faculty roles and teaching practices, (b) faculty communication strategies, and (c) faculty changes in instruction. There were similarities among the experiences of the participants in relation to their transition from online teaching to face-to-face teaching. In their transition, the majority of the participants noted their teaching role changed to more of a facilitator since teaching online. All the participants mentioned that they changed from teaching in an instructor-focused environment to a learner-focused environment.

Results for Central Research Question

The responses to the central research question served as a foundation in understanding how teaching at a distance affects the attitudes, perspectives, and practices of higher education faculty when they return to face-to-face teaching. All of the participants specified that teaching online assisted them in thinking differently about their face-to-face teaching. The majority of the participants mentioned that they improved their ability to interact and respond to questions. Some mentioned that teaching online has increased their awareness of students' needs and methods to create engaging activities:

> Teaching online changed my attitude and perspectives when returning to face-to-face teaching because I can tell by students' responses, expressions when they do not understand something right away. I can also see when the material is not interesting. This allows me to improve what material is essential and provide activities that are engaging and enhance student learning. (Participant C)

> My interaction in my face-to-face class is greater now due to my online experience. I really feel like students are getting double for their money because they are getting the face-to-face experience and they are getting the online experience as well. They have immediate access to me in class and they have access to all the resources. (Participant F)

> When you are teaching online, you do not have access to non-verbal cues, expressions, and gestures; therefore, you need to be extra careful in communicating. Communication must be clear. You need to be very inviting in terms of feedback from students. (Participant G)

One instructor noted that it is easier to teach face-to-face after teaching online, while another instructor disagreed and faced challenges when returning to the face-to-face classroom:

> It is so much easier to teach face-to-face after teaching online because I have mirrored my face-to-face class after my online course. My attitude and perspectives have changed since teaching online and returning to the face-to-face class. I am able to share the online resources with the face-to-face class. I use some of the same methods and I have structured my face-to-face course in the same format as my online course. (Participant I)

> My attitude and perspective after teaching at a distance and transitioning to the face-to-face classroom was that I struggled with lecture present. I thought I could just jump back into the classroom but it was a huge challenge for me. I was trying to use the same material but I had to go back and completely redesign a lot of my material to be more entertaining. I felt like I had to entertain the students more in a face-to-face class than I do in an online class. Online students are much more engaged and face-to-face students still want to be spoon-fed. I increased my level of communication using both asynchronous and synchronous tools within my LMS, which allows me to almost connect with students 24/7, not practical but available. I have realized teaching online and face-to-face that online students are much more engaged and require feedback more often. (Participant H)

Finally, teaching online has helped the participants to integrate more technology into face-to-face classrooms:

> I like the fact of using the technology because even in my face-to-face class I use Blackboard, Collaborate Ultra, and Adobe Connect. Many of my students are nontraditional students who work and have other responsibilities and are not able to come to class. It has been great to be able to speak with them virtually. I have PowerPoints and videos that I use for my face-to-face class. I like the fact that my face-to-face students submit their work online also because this keeps clutter away from my office. Blackboard reminds them when the work is due; I know when the work is due and who has submitted. It just makes life easier for the student and the instructor. (Participant B)

> Since teaching online, I use more technology in my face-to-face class. I also use the document camera to capture 3D object and/or 2D images, create more discussion, interaction, and capture students' attention. Effective technology integration changes the dynamics of the classroom and promote student-centered. Students not only become engaged, but they also begin to take more control over their own learning. (Participant F)

> I have taught face-to-face and fully online classes within the same semester and I have noticed that upon returning to my face-to-face classes from my online experience was the fact that I realized that I began to use more technology. For example, for my face-to-face class I would only use hardcopy gradebooks to organize the course. This was not beneficial to the students because they were not able to see immediate results of their scores; therefore, I decided to use online grading. I also integrated Blackboard mobile, audio, and video in my face-to-face course. (Participant K)

Results for Research Subquestion 1

Subquestion 1 asked, How are instructors' perceptions of their role and their teaching practices altered when they returned to instruction in a face-to-face classroom? Faculty members indicated that, when they returned to the face-to-face classroom, they moved from being at the center of the interaction or the source of information to the "guide on the side." They noted they

became less of a lecturer and more of a facilitator, which was the highest ranked role identified in this study. The second-highest-ranked role identified was resource provider.

Two of the participants described their role as a manager/administrator because they supervised and moderated discussions, organized, planned, evaluated assignments, and maintained student records. This aligns with the findings of Baran et al. (2013) and Guasch et al. (2010), who suggested that the administrative manager role comprises carrying out the pedagogical tasks related with course management, including establishing rules and regulations, student registration, and recordkeeping:

> I can honestly say I did lecture more, but now I am more of a facilitator and I have also altered my role with being a resource provider because my face-to-face students have access to the material 24/7. This is beneficial to the face-to-face students because they do not have to wait until the next class or office hours, they can simply go online and obtain what is required and if they need to contact me I am only an email or Collaborate [Ultra] away. Before I started teaching online I was definitely more of a lecturer and my courses were more teacher-centered but I have altered my role and teaching practices to be a One Stop Shop. (Participant B)

> My courses were designed around more of me attempting to get students to understand the material. Now I am more of a manager and administrator because I plan, organize, supervise, and provide all the resources that are necessary and required for them to be successful and I observe their progress. (Participant C)

> I have always desired to become more of a facilitator. I would say that online teaching moved me in the direction of being more multimodal in my approach. Working to become a facilitator and placing more of the ownership of the learning process on the student. The way I have structured my face-to-face course has allowed me to create a more student-centered environment. This has been great for me. The students were kind of like, "what is this?" I am responsible. I feel like I am still a relatively late adopter to some of the more innovative things I can do with the resources that we have at our disposal, but I definitely see myself as managing the learning process. (Participant J)

A paradigm shift occurred within the participants' teaching practices. All 12 participants reported they changed from teaching in an instructor-centered or lecture-centered environment to a student-centered learning environment. Six of the participants explained that the differences between teaching online and of face-to-face teaching included direct eye contact, seeing students' nonverbal cues, provide immediate feedback, responding directly to questions, and assisting with problems. Eight of the participants indicated teaching online has made them more aware of the needs of their students and how to engage them to understand the content.

Results for Research Subquestion 2

Subquestion 2 asked, What communication strategies do instructors transfer from online to face-to-face teaching? Eight of the participants indicate they utilized both synchronous and asynchronous formats. Four of the participants indicated that they used asynchronous formats, such as discussion forums, blogs, and wikis. All 12 participants stated they used email to communicate with students. Nine of the 12 participants also stated they used Collaborate Ultra as a communication strategy that was transferred from online to the face-to-face classroom. They discovered that they were not limited to using telephone calls and emails when they returned to the face-to-face classroom. These participants explained that they now allow their face-to-face

students to view prerecorded lectures, access material online, and collaborate with them and their peers on their own schedule:

> When my father-in-law passed, I was out of town and I could not meet my face-to-face class in the physical classroom, but we still had class virtually. I used Blackboard Collaborate for my virtual classroom meeting. Therefore, there was no class time missed or needed to be made up due to the virtual meetings that we were able to have. I had the ability to communicate and engage with my students in real-time discussion. They were able to view the content and I recorded the presentation and posted for students who did not show for virtual face-to-face class. I also had virtual office hours utilizing Collaborate Ultra. (Participant B)

> I transferred from online to face-to-face teaching was using Collaborate Ultra with my face-to-face students. If I need to talk with them over the weekend, I can leave Ultra open on my computer and it just dings at me when they show up. Whenever I am unable to come to campus to hold regular class periods or when the campus is closed due to bad weather or an emergency, I use Ultra. In addition, I expanded my office hours by scheduling online time with students to answer questions about assignments or the course in general, to provide instruction, or to give feedback. Collaborate Ultra not only provides online students with a communication medium anywhere in the world but also face-to-face students as well. In my opinion, web conferencing is the ideal tool to bridge the communication gap between face-to-face students and online students. (Participant I)

> The communication strategies that I transferred from online to face-to-face are announcements, emails, and Collaborate Ultra. I am still learning all the bells and whistles of Ultra but I really like the tools and my students seem to enjoy it also. (Participant D)

> Students like Collaborate Ultra because they can use their mobile devices, especially their phones. It's like FaceTime for the Apple users. (Participant A)

The participant who used Collaborate Ultra had a positive experience. Findings indicated that Collaborate Ultra is efficient in terms of promoting flexibility, interaction, learning community, and engagement between student and instructor. Collaborate Ultra made a difference by providing communications comparable to face-to-face classes. The video feature in particular makes synchronous discussions possible, enabling the instructor to go beyond asynchronous online discussions. Students were able to see the instructor and hear him or her through video and audio. This was important to simulate face-to-face class experiences and provide various interaction opportunities between the instructor and the student.

All 12 of the participants specified they transferred video material from online to the face-to-face classroom. Seven of the 12 participants said they also transferred audio material from their online to face-to-face classroom. Seven of the participants mentioned another communication strategy that helped increase and enhance their face-to-face classroom was the online discussion board:

> Prior to teaching online, I made very little use of discussion boards for my face-to-face classes. I was more familiar with reflection papers. Having seen the benefits of online discussion boards, I began to use them for my face-to-face class. These discussions have helped to enrich my classroom discussions. They have improved learning by allowing students to reflect on assigned readings, offer conversation, and assist them with articulating their thoughts prior to the discussion. The students actively participate without

> feeling the overwhelming discomfort they may feel with many eyes on them in a face-to-face class. (Participant L)
>
> The discussion forum was one of the most popular features that transferred from my online teaching to face-to-face teaching. The discussion forum helped enhanced students to talk more with me. Typically, I would provide some guiding questions to foster a habit of critical thinking, reflection and articulating online. The discussion became student-centered and more students participated and shared their ideas and experiences, more than they did in class discussion. (Participant G)
>
> I use the discussion board to continue an in-class discussion. I have discovered that … some students are not confident and prefer not to speak in class but are willing to contribute to the discussion boards. It also allows students time to reflect on their thoughts before contributing, practice their writing skills, and offer peer-learning opportunities. The discussion board has been a positive experience for both my face-to-face students and me. It has led to engaging and productive discussions. (Participant I)

Five of the participants indicated that the discussion board did not transfer from their online course to their face-to-face course:

> I prefer for my students to talk to me face-to-face and not hide behind a screen. My students were not engaged in a true, back-and-forth dialogue but just typed something for contributing purposes. It seemed like it was more of an exchange of information than a true discussion. (Participant E)
>
> Online discussion decreases social interaction. The discussions can become complicated and students go off-topic and wish they could retract their threads and then they become more argumentative instead of collaborative. (Participant D)
>
> The discussion forums were not beneficial in my face-to-face class because I had to use a lot of time moderating and monitoring students' inappropriate postings. Some students wanted to dominate the conversation and this caused negative postings. This reduced students' motivation with the online discussion forum and in-class interaction with one another. (Participant C)

Results for Research Subquestion 3

Subquestion 3 asked, What changes in face-to-face instruction can be attributed to the experience of online teaching? Ten participants reported having implemented online tests and quizzes in their face-to-face instruction. One of the most common strategies to be incorporated into classroom instruction was the use of technology. All participants indicated that since teaching online, they have incorporated some type of technology into their face-to-face classroom. Most of the participants changed their perceptions regarding the role of technology. Participant A changed from viewing technology as a technical tool for supporting teaching to a view of technology as a tool for enhancing learning:

> Technology has transformed the teaching and learning experience in my classroom. My students are able to access the information quicker and easier than ever before. Since I have started to integrate technology, the traditional passive learning model is gone. I have become the facilitator, coach, adviser, and encourager with utilizing technology in my face-to-face classroom. I do not think you should just use technology because you can or let technology take over your class. You must understand how to use it, train students in using it, and learn what benefits the technology brings to your class. (Participant B)

> Technology has totally changed the dynamics of how I teach. I am learning how to teach with emerging technologies (computers, smartphones, iPads, Google cardboards, smart boards, tablets, digital cameras, virtual reality headsets) while my students are using advanced technology to shape how they learn. I have embraced and integrated technology in my online and face-to-face classroom. My goal is to set my students up for a successful life outside of the classroom by developing technological skills so they will be prepared to enter the workforce once they complete their degree. (Participant G)

> It is one thing to use technology, it is another thing to know how to use technology and use it effectively and responsibly. When you use it effectively, you can assist students in preparing for their future careers. I integrate technology into my face-to-face class since transitioning from online teaching to connect with students of all learning styles and to help develop students' digital citizenship skills. It has helped my students in my face-to-face class to be more engaged, creative, and connected. (Participant J)

Several participants found that technology changed their practices in teaching and learning because the classroom became more student centered rather than teacher centered. All participants reported that, since returning to the face-to-face classroom, they have continued to use Blackboard, PowerPoints, and multimedia. Four of the participants indicated they used proctored assessments for their face-to-face classrooms since teaching online. All participants indicated they used Respondus LockDown Monitor when requiring proctored assessments:

> Online proctoring is easier than face-to-face proctoring because she is the only instructor in the room and it is harder to catch students cheating. She also noted that she wanted her students to be familiar with and knowledgeable of the online proctoring process. (Participant F)

> Many high-tech companies offer certification exams and do not always require applicants to travel to a brick-and-mortar test center but instead utilize online proctoring. Being familiar with the online proctoring process could be a benefit for the student, helping reduce the fear of new technology. (Participant G)

It was reported by two participants that online proctoring for their face-to-face course was beneficial when they had to attend conferences or miss a class. Six of the participants reported they use rubrics to make expectations and criteria explicit and to facilitate feedback and self-assessment. Nine of the participants indicated that they have incorporated electronic resources into their face-to-face teaching instruction since teaching online.

Most participants had an appreciation of using technology in their online course, and it extended to their traditional face-to-face course. Upon their return to the face-to-face classroom, they provided students with new, authentic, and meaningful learning experiences through the implementation and integration of emerging technologies. By providing video and audio content, students are able to learn at their own pace and to go back and relearn material whenever they want. This could be especially important for students with learning disabilities. All participants benefited from using an LMS by uploading files, updating course material, submitting grades, and providing feedback.

All participants recognized the changes in face-to-face instruction that could be attributed to the experience of online teaching, as most of the same methods used in online classes can benefit the face-to-face classroom. Many participants indicated that their online courses are designed to utilize weekly modules, and they transferred this to the face-to-face classroom. This format has reduced confusion. It was reported that, due to the format of weekly modules,

instructors were able to provide more clear and concise expectations, provide additional practice samples, and reinforce the material while maintaining the class schedule. It was mentioned that the face-to-face course is more organized and, if more time was needed for something, it could be covered online via discussion forum or web conferencing. For all of the participants, the experience of teaching online improved teaching practices when they returned to face-to-face teaching.

Discussion

This study investigated the experiences of 12 participants: three professors, four associate professors, one assistant professor, three instructors, and one adjunct. The data were thematically analyzed and interpreted as a means of explaining the findings. Three themes were identified: (a) faculty roles and teaching practices, (b) faculty communication strategies, and (c) faculty changes in instructions. The participants in this study recognized their transition from lecturer to facilitator, knowledge dispenser to resource provider, and authority figure to advisor. The transforming roles of the participants varied. They described themselves as facilitator, guide on the side, coach, cheerleader, content provider, and course designer. The four categories that described the faculty roles were facilitator, resource provider, advisor, and manager/administrator. The participants modified their teaching practices from a traditional teacher-centered to a student-centered environment. The study indicated that since participants have transitioned from online teaching to face-to-face teaching they have reduced their traditional instruction of the usual lecture-centric assignments and assessment model to peer-based learning techniques and online assignments that force independent thinking and information gathering. The participants noted that facilitating and monitoring discussion, netiquette, peer review, and the manager/administrator role are essential to effective communication.

As reported by Burgess (2015) and Simonson et al. (2014) successful interactive learning experiences that work in one learning environment may be adaptable for another one. In the asynchronous environment, the teaching strategies promote interaction, student engagement, and active learning. Burgess and Simonson et al. (2014) agreed that discussion forums can keep the learner active, and enhance students' interaction with the instructor, other learners, and content. The participants reported that online courses offer more flexibility, access, and convenience, and they have offered these same advantages to their face-to-face students. Since teaching online, participants noted that they incorporated narrative lectures, audio and video files, electronic resources, wikis, online tests and quizzes, web conferencing, and online discussion forums. This study indicated that synchronous and asynchronous web-conferencing sessions can be beneficial in a face-to-face environment. The participants integrated videos into the LMS to enhance the teaching and learning process. The study's results are also consistent with several meta-analyses that have shown that technology can enhance learning (Schmid et al., 2014), and multiple studies have shown that video, specifically, can be a highly effective educational tool (Hsin & Cigas, 2013; Kay, 2012; Rackaway, 2012).

Practice

A number of implications related to practice emerged because of this research. The major implication includes the need for continuous training for HBCU faculty members to enhance their online teaching. Studies of online teaching have established that online instructors often rely on their past teaching experience when preparing to teach online (Choi & Park, 2006; Conceicao, 2006; Conrad, 2004). Faculty members whose experience has been confined to the traditional classroom cannot be expected to know how to design and deliver an effective online course (Palloff

& Pratt, 2001). Providing professional development to faculty members can help them in getting started and support their ongoing work in online teaching (Palloff & Pratt, 2001). After completion of initial training, faculty should continue receiving professional development to become aware of emerging technologies and stay current on effective educational practices (Allen & Seaman, 2016). This study's findings confirm previous research (McQuiggan, 2012) indicating that faculty members who had the opportunity to receive professional development, collaborate with experienced online colleagues, review examples of online courses, and identify their perceptions about changing their face-to-face teaching practices were effective in integrating these new emerging pedagogical strategies.

Theory

The evidence of transformative learning that occurred for the 12 faculty participants in this study suggests recommendations for improving instructional practices for teaching in the face-to-face classroom after transitioning from online teaching. The theoretical foundation of the study was the theory of transformative learning. Faculty members' experiences and perceptions of online teaching, critical reflection on these experiences, and disorienting dilemmas are key in transformative learning. The participants noted that they were aware that their efforts to create engaging activities in their classrooms presented disorienting dilemmas. Additionally, all of the participants described an occurrence of a transformation in their teaching roles. Participants of this study noted that higher education faculty members should reassess the assumptions of their formative years that have often resulted in biased views of reality.

Limitations and Recommendation

The purpose of this study was to describe faculty members' perceptions at only one HBCU institution. The results of this study offer insights to peer institutions with similar backgrounds but may not be generalizable to a larger population (Yin, 2014). A larger sample and different types of higher education institutions could have strengthened the results. Research efforts across peer institutions may advance the study by sharing best practices. The participants in this study were faculty members with several years of online teaching experience. Utilizing the transformative learning theory, future research could consider examining the learning experiences of faculty members who are new to online teaching and learning.

It is useful to consider the lived experiences of present participants in online education courses and utilize their perspectives, feedback, and recommendations to assist in meeting the needs of future online instructors to improve the teaching and learning process in both the online and face-to-face classrooms. This study indicated that faculty hold diverse perspectives on transitioning from online teaching to face-to-face teaching, including different advantages and disadvantages, successes and challenges, improvements and limits, and suggestions and recommendations for transitioning from teaching online to teaching in the face-to-face classroom effectively. This study provided insights that may assist in the transfer of successful online pedagogical strategies that can benefit the traditional face-to-face classroom. Institutions should also support teaching efforts and provide the necessary support and professional development on the LMS and other technologies. It would be beneficial for all stakeholders in education to join efforts and build bridges by sharing success stories and best practices to enhance the educational outcomes for all instructors, students, and higher education institutions.

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Appendix A

Part I: Demographic Information

In this study, you will be identified by an alias. I will ask you nine questions about your demographic information.

Alias Name:

1. What is your gender? () Male () Female
2. What is your age range? () Under 20 () 20-29 () 30-39 () 40-49 () 50-59 () 60-69 () 70+
3. What is your faculty rank? () Adjunct Professor () Instructor () Assistant Professor () Associate Professor () Professor
4. How many years of teaching experience do you have at a Historically Black University?
5. How many years of teaching experience do you have total?
6. How many years of online teaching experience do you have?
7. What is your discipline and equivalent course taught?
8. What is your level of teaching? () Undergraduate () Graduate () Mixed
9. Do you use () Synchronous () Asynchronous () Both as a communication method?

Part II: Experience Narrative

Please describe in detail your experience based on questions 10-18:

10. Describe how teaching online changed your attitude and perspectives when you returned to face-to-face teaching?
11. Describe how your role and teaching practices altered when you returned to instruction in a face-to-face classroom?
12. Did you change your content in any way when you returned to the face-to-face classroom?

13. What teaching methods and/or changes did you return to the face-to-face classroom with?

14. What communication strategies did you transfer from online to face-to-face teaching?

15. Has your Student-to-Faculty interaction and Student-to-Student interaction changed from online to face-to-face teaching? If yes, can you explain how?

16. What changes in face-to-face instructions can be attributed to the experience of online teaching?

17. Describe how professional development can assist online instructors, what topic would you include to improve the transitioning process for new instructors, and what additional training do you think you still need to assist with continuous improvement?

18. Do you have additional comments that you think would be beneficial to this study?

Thank you for your time. You will receive a transcript of the interview in about three weeks and you will have one week to review the transcript. When the study is complete, you will be given a copy of the results upon request.

Teaching to Connect: Community-Building Strategies for the Virtual Classroom

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Abstract
A sense of community is central to student engagement and satisfaction. However, many students struggle with developing connections in online programs. Drawing on interviews with 13 instructors, this paper explores the strategies that they use to help students develop a sense of community in synchronous virtual classrooms. Four strategies for building community online are identified: reaching out to students often, limiting time spent lecturing, using video and chat as modes to engage students, and allowing class time to be used for personal and professional updates.

Keywords: community, community of inquiry, online learning, synchronous

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Teaching to Connect: Community-Building Strategies for the Virtual Classroom

While enrollment in higher education has declined overall, it has increased in one area—distance education (Allen & Seaman, 2016). As of 2015, 29.8% of American students in higher education had taken a distance course, and 14.4% were enrolled in an exclusively distance education program. Twelve percent of undergraduates and 26% of postbaccalaureate students were enrolled in exclusively distance education programs (U.S. Department of Education, 2018). Despite these promising figures, attrition remains a challenge in online programs. Research by Jaggars and Bailey (2010) suggests that online attrition may be as much as 20% higher than in face-to-face programs. Community, defined as feelings of membership and closeness within a social group, can be a protective factor against online attrition (Angelino, Williams, & Natvig, 2007; Tirrell & Quick, 2012). Instructors, who are the primary point of contact for online students, play a central role in how online students develop a sense of community (Bolliger & Halupa, 2012). Given the centrality of online faculty to students' experiences, their perspectives need to be captured in the research (Shea, Li, & Pickett, 2006). Drawing on data from 13 faculty, this case study seeks to explore the strategies faculty used to enhance students' sense of community in one synchronous online doctoral program.

Review of Related Literature

The growth in online programs represents an opportunity to expand access to higher education (Allen & Seaman, 2016). Online programs allow colleges to expand their offerings to working professionals, rural students, and other learners who may have faced limitations of time or distance in attempting to pursue a degree. While supporters of online education have focused on the opportunity to provide increased content knowledge to diverse learners, there are many factors that an online program must attend to for success and sustainability. Students' interactions with content, technology, and support services all play a role in their experience of an online academic program (Berry, 2017a). Scholars also note that community is vital to students' engagement in a virtual academic program (Berry, 2017a; Rovai, 2003). A community can be defined as a supportive social group (Rovai, 2003). McMillan and Chavis (1986) write that a sense of community is "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (p. 9). In a learning community, participants have a shared goal, provide academic and social support to members, and work together to create learning artifacts or products and feel a sense of belonging (Lai, 2015).

A sense of community has academic and social benefits for students, in both online and on-the-ground programs (Lai, 2015; Lovitts, 2001; Rovai, 2003). Academic benefits of a sense of community include increased classroom participation and deep learning (Garrison, Anderson, & Archer, 2010). The social benefits of community include an increased ability to manage stress and greater overall emotional well-being (Pyhältö, Stubb, & Lonka, 2009; Stubb, Pyhältö, & Lonka, 2011). Students who feel a sense of community are less likely to drop out of an academic program (Ke & Hoadley, 2009).

Cultivating a sense of community can be difficult for online students (Ke & Hoadley, 2009). Limited opportunities to interact with peers in person may increase feelings of distance and may undermine students' sense of connection in distance programs (Koslow & Pina, 2015). Additionally, students may struggle with creating and maintaining friendships while trying to pursue personal and professional goals (Conrad, 2005).

Instructors, who are the primary point of contact for online students, can play a crucial role in how they cultivate a sense of community (Garrison, 2011). An instructors' facilitation style can impact students' experiences of community (Demmans Epp, Phirangee, & Hewitt, 2017). Phirangee, Demmans Epp, and Hewitt (2016) found that students felt more connected when instructors took an active role in facilitating discussions. Rovai (2007) found that when online instructors created conditions where students could express themselves openly and present alternative viewpoints, students were more likely to feel a sense of community.

Instructors can also use coursework to help facilitate the development of community (Garrison, 2011). Waycott, Sheard, Thompson, and Clerehan (2013) found that assignments that require peer knowledge sharing can help students create connections online. Barak and Rafeli (2004) found that blogs, wikis, and discussion/message boards increased collaboration and peer support in online classes. Shea, Li, and Pickett (2006) found that teaching activities that encouraged deep reflection stimulated students' engagement in the learning community. Baran, Correia, and Thompson (2011) found that discussion-based strategies in online courses can reduce anxiety and increase participation. Martin and Bolliger (2018) found that small group discussions where students could think deeply and share meaningful insights increased student engagement. While some online students prefer working independently, many indicate that collaborative activities with peers can increase students' sense of community (Athens, 2018; Berry, 2017b).

The method of delivery also impacts students' experiences. Though much of the literature on community explores asynchronous learning, research suggests that learning in a synchronous environment has benefits for student engagement (Pinsk, Curran, Poirier, & Coulson, 2014). Abdelmalak (2017) found that integrating synchronous tools, such as Skype, with asynchronous tools, like Twitter, blogs, and wikis, could increase students' sense of community. Synchronous communication increased students' sense of intimacy and immediacy in the virtual classroom (Abdelmalak, 2017). Clark, Strudler, and Grove (2015) conducted a study where they compared students' experiences in asynchronous courses in which communication occurred through video posts with their experiences in synchronous courses in which students communicated through videoconferencing. In a videoconference, participants can use telephone communications to communicate in real time via audio and video. Students reported that the course that used synchronous videoconferencing helped them develop higher levels of social presence. Synchronous formats, particularly those that utilize video, change the way students interact at a distance. Lenblanc and Lindgren (2013) found that courses with synchronous video helped foreign language students communicate more easily, as they were able to understand what their peers were saying through interpreting nonverbal cues. The improved communication in turn increased these students' comprehension and sense of community. Videoconferencing is not the only reason that synchronous communication enhances community. Synchronous virtual classrooms can include many technical features that help students connect, including chat rooms, which enable text communication, and breakout rooms, which enable small group discussion. McDaniels, Pfund, and Barnicle (2016) found that these features helped students engage in a variety of ways and increased students' bonds in the virtual classroom. Synchronous learning also creates constraints in relationship to community. Martin and Bolliger (2018) found that students rated synchronous classrooms as either the most or least helpful facet of their online learning experience. Some students in their survey felt that the group discussions in real time enhanced their learning and stimulated their engagement, while others found the time commitment to be burdensome. McDaniels, Pfund, and Barnicle (2016) similarly found mixed reviews of synchronous learning. They found that some students enjoyed being able to communicate simultaneously through talk and text, while others struggled with managing multiple communication features at the same time. In an earlier study on the same degree program, Berry (2017b) found that instructors must be skilled in using synchronous platforms in ways that engage but do not overwhelm students. In that study, students suggested that the following practices contributed to their sense of community: creating a warm tone in the classroom, using technology to create a personalized learning experience, and skillfully integrating video and chat into synchronous discussions.

Theoretical Framework

The Community of Inquiry (CoI) framework (Garrison et al., 2010) provides a useful explanation of how community is developed in online classrooms. A meta-analysis by Rourke and Kanuka (2009) found that there have been over 250 empirical papers written utilizing the CoI framework. Using this framework links this research to a broader canon of education technology studies. In the CoI framework, community is fostered by three interdependent elements: social presence, teaching presence, and cognitive presence. Social presence is the ability of participants to establish themselves as real in a virtual environment (Garrison et al., 2010). Social presence is cultivated when students are supported in being authentic in the virtual classroom. This occurs when students are allowed to share elements of their personal and professional lives with instructors and peers (Garrison, 2011).

Teaching presence is the ability of instructors to facilitate connections online (Garrison et al., 2010). When instructors are authentic and supportive, they can connect with students and help

facilitate peer interactions. Instructors can also use curriculum and instruction to facilitate connections (Garrison et al., 2010). Through implementing activities that require collaboration, interaction, and reflection, instructors can help students strengthen relationships with peers. Activities that help cultivate openness, trust, and support are critical to supporting students' sense of community. By creating opportunities for students to learn with and from each other, instructors cultivate strong teaching presence, help students develop social presence, and promote students' cognitive presence (Garrison, 2011).

Cognitive presence refers to the instructors' ability to facilitate moments of learning that are reflexive and provoke dialogue, and the ability of students to experience a learning environment where they can question, critique, and reflect with peers (Garrison et al., 2010). When cognitive presence is strong, students will feel like they worked collaboratively to meet shared academic goals. The CoI theoretical framework suggests that instructors who cultivate high levels of teaching presence, social presence, and cognitive presence in online classrooms will help students develop a sense of trust, belongingness, and self-disclosure (Garrison et al., 2010). Over time, these feelings will contribute to students' sense of community in virtual classrooms (Garrison et al., 2010).

Research Question

This paper is driven by the following question: What strategies do faculty use to help create community in an online program?

Methods

Setting

The study took place in an online doctoral program at a large Research 1 institution which will be referred to by the pseudonym *University of the West*. Data was drawn from the education doctoral program. Though this program was in its third year, the University of the West has been offering master's and doctoral programs in education for the past eight years.

The degree program used a synchronous format to deliver classes. Each class was held online once a week for approximately two hours. Courses were hosted using Adobe Connect web conferencing software. Through this software, students could see their peers and the instructor. The software also allowed students to be separated into smaller groups for discussions and to communicate via chat.

Design

The qualitative approach allows researchers to highlight participants' experiences in detail (Merriam, 2009). As there are few studies which capture the perspectives of online faculty, this approach was deemed appropriate. This study is a qualitative case study, where the case is the online doctoral program. Case study methods are appropriate for descriptive analyses of unique contexts (Merriam, 2009).

Sample

The study was open to all full-time and part-time faculty who taught in the spring 2017 semester of the program. Data collection began by soliciting participation from faculty who were in charge of leading a section of a course in that term. These key informants helped generate a snowball sample by recommending other faculty who should be invited to participate in the study. Participants were sought who represented a range of experiences in the online program, including

newer and more experienced faculty. (Table 1 contains a profile of the sample.) After interviewing six full-time and seven part-time faculty (or 25% of the faculty who taught courses in spring semester), no new data emerged, and data collection ceased. Full-time faculty had an average of 12.5 years teaching experience in higher education and an average of seven years in online teaching experience. Part-time faculty had an average of nearly four years teaching experience in higher education and a little over three years in online teaching experience. Approval from the Institutional Review Board to conduct the study was received, and informed consent was obtained from all participants prior to data collection.

Table 1
Profile of Participants

Faculty (pseudonym)	Part-time or full-time	Years taught online	Years taught in higher education
Dana	Full-time	8	20
Vanessa	Part-time	6	6
Michael	Full-time	7	7
Stacey	Full-time	8	8
Marie	Full-time	8	8
Jane	Part-time	4	.5
Javier	Part-time	1	1
Davis	Part-time	1	1
Marty	Part-time	11	11
Susan	Part-time	1	1
Darren	Full-time	3.5	18
Ashley	Part-time	3	3
Kara	Full-time	8	14

Data Collection

Semistructured, 45-minute interviews were conducted with the 13 participants. Semistructured interviews allow researchers to stick to a protocol while allowing for deviations as necessary. The open-ended questions allowed faculty to share their unique experiences. The interviews focused on definitions of community, faculty's role in community, and strategies for creating community. The interview questions appear in Appendix A.

Data Analysis

Interviews were conducted via phone and recorded using GoogleVoice. Audio files were sent to a transcription service. The transcripts were analyzed using a coding scheme aligned to the CoI framework (Garrison, Anderson, & Archer, 2010). A directed content analysis approach was used to analyze data (Hseih & Shannon, 2005). In this approach, an existing theory is used to analyze data. Beginning with a coding scheme aligned to the CoI framework (see Appendix B), the researcher identified aspects of cognitive presence, teaching presence, and social presence. An example of social presence would be self-disclosure, where students or instructors share details of their personal lives outside of class. An example of teaching presence would be establishing

netiquette through the creation of norms. An example of cognitive presence would be engaging in critical discourse about course content.

After analyzing the data with the pre-established codes, the interview transcripts were reviewed again for new codes that emerged from the data. Codes that emerged from participants' perspectives and that held across interviews were added to the coding scheme. For example, "checking in," or spending time at the start of class to learn about updates from students' personal and professional lives, was added to the coding scheme after it came up in several interviews. Data was recoded using theoretical and emergent codes. The themes that emerged from coded data were used to create the case study on faculty perspectives on community.

Limitations

This study has several limitations. First, the study focuses primarily on synchronous strategies for building community. As online programs use a variety of formats, including asynchronous and hybrid course delivery, the findings may not be applicable to contexts where students do not meet online in real time. Another limitation of the study is that it focuses on only one online program. Even within synchronous programs, there is wide variation. Comparative work is needed to see how the strategies outlined in this study are utilized in other programs.

Results

Faculty in the online program implemented a number of strategies to help students in the online program develop a sense of community. Four of the strategies are highlighted below: reaching out to students often, limiting the time spent lecturing, using video and chat as modes to engage students, and allowing class time to be used for personal and professional updates.

Strategy 1: Reaching Out Early and Often

Faculty in the online doctoral program agreed that the first step in helping form an online community was to connect with students. Toward that end, faculty were intent on reaching out early to begin fostering connections with students. All of the faculty sent welcome emails to introduce themselves to students. Here is how Michael describes his initial efforts to establish a tone of warmth and rapport early on with students:

> Before the semester starts, I send the students an introductory email. In that email, I give some personal information about myself. We talk more about what I've shared when we do our first online class meeting. Throughout the semester, I make sure the students learn more about me. I'll share some personal stories and experiences and allow students to do the same. I think by the end of the class, my students know me pretty well, and I think I know them pretty well.

For Michael, the introductory email was a way to begin the process of building relationships with students. In addition to reaching out before the semester started, seven of the faculty described the importance of maintaining regular connection with distance learners over the course of the semester. Jane describes how she reached out to her students:

> I send them at least one email a week, and I at least post to the wall one time per week. Just checking in, just sending email, using words like, "appreciate," "look forward to seeing you." So, I think the language that we use is so important as well.

Jane indicated that the content of the messages varied in response to students' needs:

> Oftentimes I send students a recap of the class and then the deliverables moving forward for that week. There are other times where it might be an announcement. So, for example, there's a video that somehow went missing in cyberspace for one of the units and I just gave them an update on that. So sometimes it's moving forward throughout the week, hearing things that we need to accomplish. Sometimes it's just an announcement. Sometimes it's, "I hope your week is going well. I look forward to seeing you all Saturday." Just reminding them the expectation before the class. So sometimes just check-in. Sometimes it's a reminder. Sometimes it's kind of those, for lack of better terms, marching orders for the week until I see them again.

For Jane, the weekly messages to her students were a way to keep a connection active between class sessions. The messages were also a way for her to express that she was interested in students' lives and available to quickly address their concerns. For Michael, Jane, and other faculty in the online program, sending messages at the start of the school year and throughout the course of the semester was a way to create and strengthen bonds with students.

Strategy 2: Limiting Lecture Time, Increasing Discussion

With the first strategy, instructors sought to strengthen the relationships they had with students. However, cultivating community is also about facilitating interactions between peers. Toward that end, faculty used a variety of teaching strategies to promote peer interaction in the online classes. One strategy was to limit time for lecture and increase time for discussion in the online classes. More than half of the faculty interviewed, including Marty, suggested that an overreliance on lecture was not productive for an online environment:

> Teaching online is not just, "hey I'm gonna turn my computer on and my camera, and I'm just gonna be able to teach an online class." If you're lecturing for two hours, then that's a complete waste of everybody's time. If you're not giving students an opportunity to have a voice and an opinion, it's completely a waste of time for students.

Instead of relying on lecture as the primary mode of instruction, four of the online faculty opted for more of a flipped classroom model. In this model, students were encouraged to review course content independently and were expected to come to class ready to apply what they learned through small group activities. This model allows the instructor to act more as a facilitator than as a lecturer and frees up class time for student-led discussion. Jane talked about the importance of using a more discussion-based format in her online class sessions:

> My online classes are less lecture and more conversation. It's more of a Socratic seminar in the sense that there's give and take as opposed to, "I'm the expert in the room and I'm gonna just give all my knowledge to you." I think it helps because there are so many perspectives in a doctoral class. I tell my students, "I know that you all bring these really unique experiences and I want to learn from you." And I think that they really appreciate that. I think that made them comfortable that I wasn't coming in as this expert in a sense. I think that's really helped with our dialogue in the class.

As Jane's quote illustrates, encouraging a conversation between students rather than an instructor-directed lecture was a way to encourage dialogue in the online classroom. Instructors suggested that frequent dialogue was central to promoting a sense of community in the online classroom.

Strategy 3: Using Multiple Technical Features of the Virtual Classroom to Encourage Discussion

To facilitate robust, interactive online discussions, instructors had to utilize many of the features in the virtual classroom. The program at the University of the West utilized a system powered by Adobe Connect. Using this particular web conferencing software, teachers could break students into groups of varying size. Instructors could also use a chat room to have whole group or small group discussions. Instructors found that by using these functions in each of their online class meetings, they could help students cultivate a sense of community in the online classroom. In this particular online program, the chat room was a regularly used function that instructors could use to increase interaction. Six of the faculty used the chat as a space where students could engage in multiple, simultaneous discussions of course content. Kara would use the chat to identify strands of discussion that she could elaborate on with the whole group:

> When I ask a question, oftentimes students will respond in the chat box. While we might have somebody who is verbal and says, "Hey, here's what I think", many students like to use the chat box. So I'll make it a habit to scan the chat. If I see something that is interesting or see someone who doesn't normally speak up and that I want to bring into the conversation, I'll ask that person to elaborate on what they mentioned in the chat box. So that gives me a chance to support the folks that are not necessarily instinctively verbal, and also to pick and choose the kind of responses that help guide the content. The chat is really big in engaging the students.

As Kara's quote suggests, using the chat was a way to broaden participation in the course discussion. Stacey also spoke about the democratizing effect that the chat room had on course discussions:

> I like being able to communicate in multiple modalities simultaneously. For example, I might be facilitating a conversation out loud with the whole group of students, but while I'm doing that, I might also be talking via text in the chat pod to a few students who have a different question. The chat allows us to have a side channel, where a secondary conversation is happening. This is particularly helpful for students who choose to type more than talk, or students are English language learners or students who are feeling shy for whatever reason. A lot of times, students will communicate via chat before talking aloud. I can pull out things from the chat and highlight them, and respond to them more. This helps warm people up, it helps them engage more.

As Stacey's quote illustrates, the synchronous chat room fulfilled several functions in the online classroom. It allowed multiple conversations to happen simultaneously, increasing the number of students who could participate. It allowed for students who had difficulty expressing themselves verbally to engage in the whole group activities. The chat also helped increase students' comfort level with participating in the online classroom. All of the instructors interviewed said that they used the chat in each course session. By making regular use of the chat, instructors ensured that more students could participate in online discussions. By expanding participation in course discussions, instructors contributed to students' engagement in the online community.

While the chat was a way to strengthen students' interactions with the group as a whole, breakout rooms were a way to help students have deeper interactions with smaller groups of colleagues. Through the breakout function in the virtual classroom, instructors could place students in small groups to have discussions. All of the instructors said they frequently used the function to place students in groups ranging from two to four in number as a way to encourage peer interaction

and strengthen the online community. Kara described the way that she used breakout rooms in the online classroom:

> I believe that you have to position students as contributors to the discussion, as folks who have something to add to the conversation. So, I use breakout rooms every single class. I try to keep it to like two breakout sessions each class time, just because I know that it takes time to go into the breakout, to have time there to sufficiently discuss and then to come back. But I don't ever not have breakout sessions when I'm teaching online because I find that that is the best way in a small group format to engage students and to have them talking to each other.

The theme of breakout rooms as central to student engagement came up in 12 of the interviews with online faculty. Breakout rooms were also a way to encourage relationship building in the online program. For Marty, breakouts gave students the opportunity to get to know their colleagues:

> In an online program, I think it is incumbent upon the professor to provide those opportunities for students to get to know one another, to work together. It's easy sometimes to let students work with the same folks every time because maybe they have a similar profession, work in the same industry, or naturally gravitate toward one another. But as an instructor in an online program, you have to be intentional about grouping students together to encourage connections. Sometimes I randomly sort students into groups, but most of the time I'm strategic. I can tell pretty quickly who knows who really well. I try to give students opportunities to work with others whom they work well with, but also to work with new students. I use the breakouts to build that sense of community and to deepen their capacity as individual students and as collaborators working together to learn something new.

According to instructors, the small group conversations that occur in the breakout rooms provide a space for students to go deeper with their colleagues. Michael described the impact of breakout rooms on his students' connections:

> We are big on small group discussions and projects. In the small group interactions, I do think that you get sort of a friendship that comes from this and people sharing things. One of the things I do when I would break the students into small groups is I turn off my camera. When I went into the breakout rooms, they didn't know I was there; just to see what was going on. And I'll see the students sharing some personal experiences and personal stories. What they are talking about is not necessarily related to the assignment, but was actually still neat to see them connecting.

As Michael's quote illustrates, the breakout groups produced interactions that were both academic and social in nature. By providing a space for students to work collaboratively while also having fun and learning about peers, instructors' use of the breakout rooms helped strengthen students' sense of community.

Strategy 4: Using Class Time to Share Personal and Professional Updates

As the previous strategies indicate, faculty in the online doctoral program at the University of the West spoke frequently about using a range of strategies to encourage dialogue surrounding academic content. Through these discussions students were afforded space to interact and bond with their peers, contributing to their sense of community. However, not all of the dialogue in the online classroom was related to academics. Half of the faculty interviewed were intentional about allowing more informal, personal, and social discussion to take place in the online class. Jane described the importance of responding to students' needs for social interaction this way:

> The feedback from my students was that they wanted more time for informal interaction in their classes. Because of the cohort model, students were taking classes together, and so they were bonding intellectually. But the students told me that they wanted more time to bond informally. I think there is a sense of connection when students can talk more freely in the class.

To help students cultivate a sense of community, Jane allowed students to "talk freely" throughout the class, which included allowing opportunities during class for students to ask questions, share concerns, and share information that was not directly related to course content. For Ashley, this looked like carving out time for informal discussion at the start of each class session:

> I think students in our online program have a huge desire to connect and to really network, for lack of a better term. Students want to share information and help each other with opportunities. To help with this, I always put up different poll questions before my class starts. One of the questions I'll ask is something like, "Who do you know who would be a great contact for your colleagues?" Something like that, so that they can have this kind of discussion about it. We spend maybe five or ten minutes on this. Some students come to the class early, and so I don't want them just sitting waiting for us to start, I want them to be busy. So, asking questions at the beginning of class gives the early students an opportunity to connect with each other and learn something from their peers as well.

Ashley was intentional about carving out space at the start of the online class for students to ask targeted, purposeful questions to peers that met academic and professional needs. Other online faculty used the first few minutes of class to allow for more organic social discussion to take place. Kara described a common exchange in her class that emphasizes this more organic flow:

> I have a current student who is in Kuwait, he just moved to Toronto for the summer, but the first couple of weeks he was in Kuwait so he was waking up at 2:00 in the morning. So, he looked a little disheveled and tired and I would allow students to converse about, "How are you doing Steven? Are you awake?" And things like that to enable students to not just think of classes as just a place for instruction. While it's important for me to spend the bulk of the time on the content so that they get their money's worth, I do allow for some time to check-in about personal things and how people are doing.

For Kara and for other faculty, it was important for students to see the online classroom as a social and interactive space, one where academic content was prioritized but personal sharing was encouraged. One facilitation strategy Marty used to prioritize social engagement in the online classroom was to use the first few minutes of each online class session to allow the students to share personal updates with their peers. Here is how Marty described this process:

> At the beginning of every semester, we do course introductions. I let the students know my background, my expertise, my area of interests I also dedicate a portion of every class to sharing updates. We start class with celebrations, personal and professional. So sometimes not all students have something to share, but I always make a point to share something about myself to model that so they feel safe to share something of success in the last week, either personally or professionally, so they get to know me there. I also share helpful information that is not necessarily related to the curriculum. For example, I'll talk to them a little bit about the EdD program, how to navigate it, how to be a successful student, and how to complete a dissertation. I share information from my own doctoral journey.

For Marty, sharing his personal experiences was a way that he could connect with doctoral students. By sharing highlights from his own doctoral journey, he was able to build rapport with students. By allowing students to share elements of their personal and professional interests in class, Marty and other faculty helped cultivate a sense of intimacy and authenticity, two crucial components to community.

Discussion and Implications

Findings from this study indicate alignment between what instructors and students considered to be community-building strategies (Berry, 2017b). Reaching out early and often, using class time to allow students to share personal and professional updates, and skillfully using technology to engage with students were strategies that students cited as being beneficial to their sense of community (Berry, 2017b). That instructors similarly view those as valuable strategies is important for the sustainability of such practices in the classroom. In the first study, students did speak about the importance of personalization, including instructors who gave them audio-recorded feedback and did other things to tailor the classroom to their individual interests. Such themes of personalization did not come up when talking to instructors, and therefore require further inquiry.

Another area of departure on the nature of community-building came in considering where community is cultivated. Data collected from faculty suggested that online instructors feel that community for online students is limited to the classroom. However, previous research on students in the online doctoral program suggests that they experience community in a variety of spaces (Berry, 2017a). Students in this program connected online through social media. They also connected in person, meeting up for study groups in the library and attending football games together (Berry, 2017a). Instructors in this study were largely unaware of student interactions outside of the classroom, and were not aware of the significance of these events in cultivating students' sense of community. Findings collected in this study suggest a disconnect in how online instructors and students view the online experience. In order to support students' sense of community more fully, instructors must be aware of the nature of student engagement in the program in which they teach. While instructors were very attentive to the dynamics of community for which they were directly responsible, there may have been missed opportunities to help support student engagement in the academic program as a whole (Berry, 2017a). Learning more about instructors' roles in supporting students' sense of community outside of online classrooms is a key area for research and theory-building.

The findings of this study connect to theory in other ways as well. In the CoI framework, Garrison, Anderson, and Archer (2010) write that an online community is cultivated through instructors' ability to help students be authentic in virtual environments (social presence), effectively use the medium to teach and promote peer interaction (teaching presence), and help students make connections between academic content and their personal and professional experience. Instructors in this particular program cultivated community in ways that were consistent with Garrison, Anderson, and Archer's work on social presence and teaching presence. What is important to note in this case study is the overlapping nature of social presence and teaching presence. Much of instructors' efforts to help students connect in the classroom relied on altering the structure of teaching activities to increase opportunities for social interaction. From devoting class time to sharing personal updates to utilizing a flipped classroom to allow for more discussion, instructors were intentional about creating opportunities for social engagement between students throughout each course session.

Instructors' efforts to use instructional time to cultivate social presence may have contributed to students' sense of community in the online program. However, research by Ke (2010), Shea and Bidjerano (2009), and Diaz, Swan, Ice, and Kupczynski (2010) suggests that the impact of social presence on cultivating a community of inquiry may be overstated. Ke (2010) writes that students may prefer reduced discussion with peers in favor of more rigorous academic activities. Martin and Bolliger (2018) found that online students had varying perspectives on the benefits of peer discussion, with some feeling it was the most beneficial aspect of online learning, and others feeling like it was the least beneficial component of distance education. While instructors in this study felt that using peer interaction as a means of cultivating social presence was beneficial to students, more research needs to be done on students' perceptions of the importance of peer discussion and interaction.

While strategies that increased social and teaching presence were foregrounded in this particular study, a limitation of this work is that instructors provided less information on how they developed cognitive presence in the online community. Redmond et al. (2018) writes that cognitive engagement is a central part of engaging students online. Activating metacognition is a powerful tool to help distance learners connect to the curriculum and to each other (Garrison et al., 2010). Ke (2010) writes that strong cognitive presence in an online classroom is associated with higher social presence and an increased sense of community. While instructors may seek to increase higher order thinking for individual learners, more research needs to be done on how instructors use critical thinking exercises to help students work collaboratively to make collective meaning of content and explore the implications of collaborative cognitive engagement on students' sense of community (Lee, 2014).

Conclusion

By highlighting teaching strategies that online instructors find effective, this study contributes to the literature on best practices in online learning. The findings from this case study indicate that some instructors are presently using the strategies that other researchers have found beneficial in online learning environments. For example, instructors were committed to increasing discussion and peer interaction in the distance learning environment, goals that have been identified as best practices in distance learning (Garrison, 2011; Rovai, 2007). Additionally, researchers made efforts to use multimodal communication, including videoconferencing and chat rooms. The use of multiple modes of communication has been found effective in some contexts, and warrants further inquiry (Abdelmalak, 2017; Clark, Strudler, & Grove, 2015). The fact that online faculty are taking steps to promote interactivity in distance environments indicates the integration of best practices into online classes, at least in one particular program.

This research also advances the best practices literature in a new way, as it highlights the importance of personalization and sociability to the online learning experience as promising practices. In this case study, instructors sought to increase personal connections to individual students by sending them emails before and during the semester to check in. Instructors also increased the social experience of the online class as a whole by allowing students to learn about their peers' personal and professional interests. Previous research on students in these classes suggests that these efforts to learn about students to bring different aspects of their lives into the virtual classroom enhanced students' sense of community (Berry, 2017b). While more research needs to be done on the efficacy and outcomes of these practices, early research on this area suggests that students would identify these activities as best practices for online environments (Berry, 2017b).

The results of this study can be used by educators and administrators who are looking to improve teaching practice. Teaching online requires that instructors use a range of strategies to connect with students. The findings of this study suggest that these strategies cannot focus solely on academic content (Banna et al., 2015) but instead must factor in a broad range of students' social and emotional needs. By highlighting strategies that have been field tested by practitioners, this research can support the professional development of online faculty.

While exploring online teaching practices in depth is a critical first step in improving the delivery of online learning, more research needs to be done regarding students' perceptions of the efficacy of those teaching practices (Martin & Bollinger, 2018). Additionally, more research is needed on how instructors' strategies to build cognitive presence impact students' sense of community. By continuing to highlight faculty and student perspectives on teaching and learning online, researchers can strengthen practice in a growing sector of higher education.

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Appendix A

Interview Protocol

1. What is your name? What is your title? How long have you been at the University of the West?
2. How long have you been teaching online? Describe positions held at University of the West and elsewhere.
3. How would you describe the experience? Specifically, how does teaching online differ from teaching face-to-face? Are there unique challenges associated with teaching online?
4. According to the literature, one challenge that online students experience is creating community. How would you define a learning community?
5. What would you say is the instructor's role in creating community online?
6. Based on the literature, community is defined as a site of frequent interaction, engagement, and mutual support. In a community, members trust each other and support each other toward shared goals. Would you describe your classes in the program as learning communities? Why? Why not? Can you give examples?
7. Inside the classroom, what do you do to promote peer interaction and connection? Are there teaching strategies, assignments, etc. Can you give examples?
8. What strategies do you use to facilitate dialogue and discussion in your classes? What activities do you use to promote reflection and critical thinking in the online class?
9. As an instructor, what is your role in supporting students' sense of community in your classes? Do you play a role in supporting their sense of community outside of class? How?
10. Switching reels for a second to talk about technology design… the LMS features a number of bells and whistles including video and chat… how do the features of LMS impact how you help students connect and engage?
11. Do you use features like breakout rooms in your class? How often? How do you think it impacts students' interaction and sense of community? Do you use the chat room in your classes? How often? What about chat? How do you think the use of chat in your classroom impacts students' sense of community? Are there features you'd like to use more in the synchronous classroom? Why?
12. Did you receive any training professional development in using features of the LMS? Describe. How did it impact your teaching practice?
13. Thinking more broadly about the program and the institution, are there any supports that assist you in facilitating community? For example, are their resources, professional development or collaboration opportunities that have impacted how you support students in connecting and interacting in the classroom?
14. Talk about your experience as a faculty member… Are there any things that you experience as a faculty member that make it harder for you to facilitate community? These can be experiences inside of the classroom or outside of the classroom.
15. How are full-time faculty (or adjunct faculty) expected to help cultivate community in the online program? How do you feel about these expectations? What resources have you received to support you in creating community? What barriers have you experienced in trying to create community?
16. Overall, what resources do you think online faculty need in helping facilitate peer-to-peer interaction, engagement and community?
17. Is there anything else we have not mentioned about creating and maintaining online community that you would like to add?

Appendix B

Coding Scheme

Note: This coding scheme is taken from Garrison, D. R., Anderson, T., & Archer, W. (2010). The first decade of the community of inquiry framework: A retrospective. *The Internet and Higher Education*, *13*(1), 5-9.

Category	Code	Subcode	Definition
Social presence			Social presence is the ability of learners to project their personal characteristics into the community of inquiry, thereby presenting themselves as 'real people.'
Social presence	Interpersonal communication		
		Interpersonal communication	Conventional expressions of emotion, including repetitious punctuation, conspicuous capitalization, emoticons
		Self-disclosure	Presents biographies, details of personal life outside of class or expresses vulnerability
		Use of humor	Teasing, cajoling, irony, understatements, sarcasm
Social presence	Open communication		
		Continuing a thread	Using reply features to quote others' entire messages, or cutting and pasting selections of others' messages
		Quoting from others messages	Using software features to quote others' entire messages, or cutting and pasting selections of others messages
		Referring explicitly to others' messages	Direct references to contents of others' posts
		Asking questions	Students ask questions of other students or the moderator
		Complementing, expressing appreciation	Complimenting others or contents of others' messages
		Expressing agreement	Expressing agreement with others or content of others messages
	Cohesive communication	Vocatives	Addressing or referring to participants by name
		Addresses or refers to the group using inclusive pronouns	Addresses the group as we, us, our, group

Category	Code	Subcode	Definition
Teaching presence			Teaching presence is defined as the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educational worthwhile learning outcomes.
	Instructional design and organization	Setting curriculum	
		Designing methods	
		Establishing time parameters	
Teaching presence	Instructional design and organization	Utilizing medium effectively	
		Establishing netiquitte	
		Making macro level contents about course content	
Teaching presence	Facilitating discourse	Identifying areas of agreement/ disagreement	
		Seeking to reach consensus/ understanding	
		Encouraging, acknowledging or reinforcing student contributions	
		Setting climate for learning	
		Drawing in participants, prompting discussions	
		Assessing the efficacy of the process	
		Engaging dialogue	

Category	Code	Subcode	Definition
Teaching presence	Direct instruction	Present content/questions	
		Focus the discussion on specific issues	
		Summarize the discussion	
		Confirming understanding through assessment and explanatory feedback	
		Diagnose misconceptions	
		Inject knowledge from diverse sources, e.g., textbook, articles, Internet, personal experiences (includes pointers to resources)	
		Responding to technical concerns	
Cognitive presence			Cognitive presence is the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication.

Emergent Codes

Code	Subcode	Definition
Social/emotional support		The process of asking questions and providing answers that were relevant to students' social and emotional needs
Creating a personalized learning experience		The process of asking questions or providing feedback that was tailored to the needs of an individual student
Checking in		The process of asking students to share their feelings with the class

Award-Winning Faculty Online Teaching Practices: Roles and Competencies

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Abstract
The explosive growth of online learning in institutions of higher education has created a dire need for guidelines that instruct new and continuing online instructors about how best to teach in online spaces. The purpose of this exploratory study was to identify the roles of the online instructor and categorize critical competencies for online teaching based on a review of research and the perspectives of award-winning online faculty members. We interviewed eight award-winning online faculty members from across the United States. Based on interviews, it was found that online instructors assume five different roles: Facilitator, Course Designer, Content Manager, Subject Matter Expert, and Mentor. Common tasks of an online instructor course fell into two areas: Course Design or Teaching. This research has clear implications, not only for the literature research base, but for our institutions as well, as we continue to offer increasing numbers of effective online courses and programs to our students.

Keywords: competencies, online teaching, online instructor, instructor roles

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Award-Winning Faculty Online Teaching Practices: Roles and Competencies

There has been a tremendous growth in online course delivery over the last decade. Allen and Seaman (2017) found that approximately 6 million students participated in at least one online course in higher education institutions in 2015, compared to 1.6 million in 2002. This growth has resulted in a need for more faculty members to teach online and has changed both the role of teachers and their teaching practices (Bennett & Lockyer, 2004; Wiesenberg & Stacey, 2008). While some traditional face-to-face classroom skills transfer adequately to the online environment, additional competencies are required for instructors to be successful in the online environment (Harasim, Hiltz, Teles, & Turoff, 1997; Stephenson, 2001; Goodyear, 2002). Researchers have studied online learning and competencies required for online instructors (Smith, 2005; Darabi, Sikorski, & Harvey, 2006; Bawane, & Spector, 2009; Bigatel, Ragan, Kennan, May, & Redmond, 2012). However, there exists a need for research to investigate the kind and level of expertise required among instructors to perform various roles in online teaching based on sound research methodologies.

Ally (2008) defines online learning as "the use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience" (p. 5). Palloff and Pratt (2001) emphasize that in the online environment, the instructor plays the role of the facilitator and, in addition to the technology, needs to be given professional development and training to be a successful with online teaching. Allen and Seaman (2011) found that 6% of the 2,500 colleges and universities surveyed nationwide offering online courses reported having no training or mentoring programs for online teaching faculty. Issues in faculty training include: (1) little increase in the instructional and technical training and support needed by online faculty; (2) gaps in the quality of training received by online faculty; and (3) a constant push for more frequent and enhanced training to prepare confident faculty for the online environment Lackey (2011). This has resulted in a need to identify instructor competency areas in the online environment. This research adds to a growing body of knowledge about the roles and competencies of online instructors.

Competency

A competency is "a knowledge, skill or [ability] that enables one to effectively perform the activities of a given occupation or function to the standards expected in employment" (Richey, Fields & Foxon, 2001, p. 26). Spector (2001, p. 2) refers to the term competence as "a state of being well qualified to perform an activity, task or job function" and competency refers to the "way that a state of competence can be demonstrated to the relevant community." Spector (2001) emphasizes that the constant changes in information and communication technology make it important for us to continually identify competencies for online teachers and provide them with professional preparation and training to be successful online instructors. Kerka (1998) states that competence "is individualized, emphasizes outcomes, and allows flexible pathways for achieving the outcomes—making as clear as possible what is to be achieved and the standards for measuring achievement" (p. 2). However, one of the challenges of using a competency-based approach is that a minimum level of performance is accepted rather than trying to aim for higher standards. Kerka recommends a holistic approach instead, where competence is seen "as a complex combination of knowledge, attitudes, skills, and values displayed in the context of task performance" (p. 6).

According to Thach and Murphy (1995), competency studies have been conducted primarily by interviewing a group of experts to gather their opinions on the skills and knowledge necessary to perform a job or function well. They further elaborate that in educational settings, it is recommended to use a method where competencies are linked to roles and outputs. Bawane (1999) used the ordinates shown in Figure 1 to identify competencies based on teacher roles.

Figure 1. Competencies based on instructor roles. Adapted from Bawane, J., & Spector, J.M. (2009). Prioritization of online instructor roles: implications for competency-based teacher education programs. *Distance Education*, 30, 385.

In their research, Alvarez, Guasch and Espaso (2009) proposed the need to clarify both teacher roles and associated specific competencies and also the tasks that university instructors need to fulfill in online learning environments. Figure 2 shows the visual they used to depict the theoretical structure to define university instructor roles and competencies in online learning environments. Notably, both Bawane (1999) and Alvarez, Guasch and Espaso (2009) emphasize that roles be clearly outlined to identify the competencies.

Figure 2. Roles, competencies, and tasks for instructors. Adapted from Alvarez, I., Guashch, T., & Espasa, A. (2009). University teacher roles and competencies in online learning environments: A theoretical analysis of teaching and learning practices. *European Journal of Teacher Education*, 32, 323.

Darabi et al. (2006) drafted 20 online learning competencies from a review of the literature. Then, a total of 18 experts (5 from academia, 3 from industry, and 10 from the military) were selected and invited to participate in this validation process. The validation of the competencies resulted in 54 performance statements. Exactly 17 tasks were reported by 90% of the faculty members as commonly performed tasks in distance education. Bigatel, Ragan, Kennan, May and Redmond (2012) examined teaching behaviors, attitudes, and beliefs that reflect potential competencies for online teaching success. They constructed and distributed a survey instrument to experienced online faculty and staff members and asked them to rate the level of importance of a list of teaching tasks. Based on faculty interviews and a review of relevant research, researchers identified 64 teaching tasks. Smith (2005) identified 51 competencies for online instructors, noting whether the competency was of primary importance before, during, and/or after the course.

Roles of Online Instructor

The online instructor's role is very important to the success of online learning. The advent of online learning, lecture-based classes online, and the transformation of the instructor role requires a paradigm shift. Through the use of discourse analysis, Beck and Ferdig (2008) revealed that the role of the teacher transformed from teacher-centered to student-centered, low-interaction to high-interaction, and low-initiator to high-initiator. Easton (2003) found that online instructor roles require a paradigm shift regarding instructional time and space, virtual management techniques, and the ability to engage students through virtual communication. Several researchers have identified various roles for online instructors as outlined in Table 1.

Table 1.
Roles of Online Instructors

Online instructor roles	Researchers
Instructor, instructional designer, technology expert, technician, administrator, site facilitator, editor, librarian, evaluation specialist, graphic designer	Thach and Murphy (1995)
Process facilitator, advisor/counselor, assessor, researcher, content facilitator, technologist, designer, and manager/administrator	Goodyear, Salmon, Spector, Steeples & Tickner (2001)
Cognitive, affective, and managerial	Coppola, Hiltz, & Rotter, (2002)
Administrative manager, instructor/facilitator, instructional designer, trainer, leader/change agent, technology expert, graphic designer, media publisher/editor, technician, support staff, librarian, evaluation specialist, site facilitator/proctor	Williams (2003)
Pedagogical, communicational, discipline expertise, and technological	Dennis, Watland, Pirotte, and Verday (2004)
Administrative, design, facilitation, evaluation, and technical based on instructional theory, research and experience	Shank (2004)
Content expert, process facilitator, instructional designer, advisor/counselor, technologist, assessor, material producer, administrator	Aydin (2005)
Administrative, personal, technological, instructional design, pedagogical, assessment, social roles	Varvel (2007)
Professional, pedagogical, social, evaluator, administrator, technologist, advisor/counselor, and researcher	Bawane & Spector (2009)
Pedagogical, social, managerial, technical	Berge (2009)
Design/planning, social, cognitive, technological, management	Alvarez, Guasch and Espaso (2009)
Preparation, planning, design, facilitation, interaction, providing/gathering feedback, reflection	Abdous (2011)
Active learning, Active teaching/responsiveness, administration/leadership, classroom decorum, policy enforcement, multimedia technology, technical competence	Bigatel, Ragan, Kennan, May, and Redmond (2012)
Leadership & instruction, active teaching, community & netiquette, tools & technology, instructional design	Farmer & Ramsdale (2016)

Purpose of the Study and Research Questions

While we have several research studies that highlight best practices for online instructors (e.g. DiPietro, Ferdig, Black, & Preston, 2008; Keengwe & Kidd, 2010), the literature base still does not provide clear guidelines on the evolving necessary roles and competencies of effective online instructors. Enumerating these competencies can provide instructional designers, faculty members, directors of online education, and other relevant stakeholders with clear guidelines about how best to prepare future online instructors to teach in dynamic online spaces. The purpose of this exploratory study was to identify the roles of the online instructor and categorize the critical competencies for online teaching based on a review of research and the perspectives of experienced, award-winning online instructors based on interviews. The key research questions that guided this research are:

1. What are award-winning online faculty perspectives regarding the various roles for online instructors?
2. What are award-winning online faculty perspectives regarding the key competencies for online teaching?

Methods

In this section, we outline the participants, procedures, interview instrument, and data collection and analysis of this exploratory research study.

Participants

Eight of the fifteen faculty members who had won awards for online teaching were contacted by email and agreed to participate in the online interview. The interview participants included eight distinguished online instructors who have either won the Excellence in Online Teaching Award from the Online Learning Consortium or the Crystal Online Teaching Award from Association for Educational Communications and Technology, two large professional organizations dedicated to the research and practice of online learning and teaching. Six of the interviewees were female and two were male. Participants had experience teaching in both asynchronous and synchronous learning spaces using a variety of platforms including Desire2Learn, Blackboard, WebCT, Canvas, and Moodle.

Table 2.
Demographics of Eight Award-winning Faculty Members

ID	Gender	Award	Years Teaching in H.E.	Years Teaching Online	LMS Experience	Modality
1	F	Excellence in Online Teaching, OLC Award	20	15	Genzibar, WebCT, Desire2Learn, Canvas, Blackboard	Blend of Asynchronous and Synchronous
2	F	Excellence in Online Teaching, OLC Award	30	6	Blackboard	Asynchronous
3	F	Excellence in Online Teaching, OLC Award	14	12	Blackboard, Moodle, Canvas	Asynchronous

4	F	Crystal Award, AECT	23	5	WebCT, Blackboard, WordPress, WikiSpaces	Mostly Asynchronous with some Synchronous
5	F	Crystal Award, AECT	15	5	None identified	Blend of Asynchronous and Synchronous
6	M	Gold, Online Technology ~ Higher Education, Best Practices Awards for Excellence in Distance Learning Teaching	31	9	Blackboard	Mostly Asynchronous with some Synchronous
7	M	Excellence in Online Teaching, OLC Award	44	42	Blackboard	Asynchronous
8	F	Excellence in Online Teaching, OLC Award	18	15	CAD, Blackboard, Interlearn, Moodle	Asynchronous

Procedures

The research project was executed in three distinct phases: 1) review of existing research literature on online faculty roles and competencies, 2) development of interview guide based on the literature to interview award-winning online instructors, 3) interview award-winning faculty members teaching online at various institutions of higher education within the United States. We interviewed the eight faculty members via Goto Meeting to learn about what they do in their online courses. To aid in the data collection process, we presented the interview questions on a shared screen to assist the interviewee in answering our questions. All interviews were digitally recorded for later transcription and coding.

Instrument

As noted, we reviewed the existing literature as a starting place to identify roles and competencies for online instructors. Using the online instructor roles and competencies in the literature as a guide, we then developed a semi-structured interview protocol with 14 questions to collect in-depth qualitative information from award-winning online instructors. For example, one question read "What are the various roles instructors take on in online learning?" All questions were carefully reviewed by members of the research team, all of whom have taught online, for clarity and intent.

Data Collection and Analysis

The interviews were recorded, transcribed, and analyzed using the constant comparative method. The constant comparative qualitative procedure was selected because it "is concerned with generating and plausibly suggesting (but not provisionally testing) many categories, properties, and hypotheses about general problems" (Glaser & Strauss, 1967, p. 104). Two researchers first read through each interview to ensure that the same questions had been asked and made notes pertaining to additional responses. The data were then compiled by responses to research questions across the eight interviews in order to compare the experiences and responses of all interviewees. Each set of responses then underwent open coding and axial coding (Strauss & Corbin, 1990, p. 96). Both researchers open coded all eight responses to one question and met to discuss their codes. They then coded the data for the remaining questions. The codes were reviewed by both researchers to reach agreement. The codebook was then examined to eliminate redundancy and grouped together pertinent codes into categories. The resulting categories were then compared across questions to consolidate and finalize the themes.

Results

Roles and Responsibilities of Online Instructors

Participants stated that, at various times, online instructors take on several roles, such as course designer, teacher, mentor, facilitator, "cheerleader," and even a "rule-setter." They viewed an important component of online pedagogy as "the engagement, the support, the mentoring of the students as they move through courses." The online instructor roles described in the interviews were facilitator, course designer, course manager, subject matter expert, and mentor.

Facilitator. The most important role of the online instructor, according to those interviewed, is that of the facilitator and instructor "presence." They stated that "being there" for students and "having a presence that the students felt on the course site" were essential. Participants explained what "presence" meant to them in the following examples:

- Create a video to introduce themselves at the beginning of a course
- Include "early activities" to make students comfortable with the technology
- Check in with students regularly
- Engage with students to make the course interactive
- Get in touch with students to motivate them to complete the course
- Help students manage their time and be successful
- Help students develop self-regulated learning skills
- Establish a "personal connection"
- Hold online office hours
- Be responsive to individual students and the group throughout the course, but being available as much as possible just before assignments were due
- Use other means of synchronous and asynchronous communication when required, e.g. texting
- Resolve student problems and questions as quickly as possible
- Be present in discussion forums
- "Letting students know you are reading"
- Use formative assessment in the form of quizzes, discussion posts, online meets or synchronous sessions, short papers, projects, etc.
- Provide "timely, actionable, and substantive" feedback on assignments

One participant summarized by saying, "So the most important role for the instructor is to be present, to be available, to be a facilitator, and to be able to share his/her expertise online and to model for the students what it really means to participate in an online course."

Three participants also named student engagement in their role as an online instructor. They believed "if you don't engage your students, they are not going to learn," and that online instructors have to engage students and "focus on interactivity within their teaching where they can foster student to student interaction as well as instructor to student interaction." Examples of engagement given by the participants were authentic projects and interactive experiences. One participant described an interactive experience as one where different media are used, giving an example from her class: "Sometimes I record myself like this for a lecture or link them to videos. I teach poetry class online and I am able to link them directly to poets and their works, there are resources there." Another participant stated, "I think we have an ethical responsibility to make the course interesting." They emphasized student engagement by asserting that it is "an incredibly important role that educators should embrace" and "essential for the online instructor to be highly engaged online."

Similar to the face-to-face classroom, online instructors have to assess student learning. According to participants, formative assessment and the choice of technologies or assignments play a key role in online course design. Online instructors have to reflect on "how well the tools you've selected work for a particular learning assignment that you've set up…how your own course design is benefitting the student learning process or not."

Course designer. Course design was mentioned by all eight participants as an integral part of their role as online instructors. They elaborated on various areas of course design such as establishing learning objectives, including active learning strategies, visualizing a course design that is compatible with the content and course delivery approach, and ensuring it is accessible and ADA-compliant. Several participants mentioned course shell development as part of course design. One participant believed the course design should get "the students excited about developing progressive mastery with the material," while another reflected, "You also take on the role of designer in a very different kind of way than you do in a classroom…we could really be designing the classroom, the piece of designing—if you will, the chassis—the course goes in, at least where we did not have any instructional design support." Another participant also stated that adopting a design-based approach by reviewing what worked or not and revising it for the next offering was an essential part of course design by an online instructor.

The role of the instructor as course designer, however, depends on the type of institution in which an online instructor works, the structure within the institution, and the availability of support within the institution, according to the participants. For example, those who have no support available build and teach their course on their own, whereas one participant works within a "centralized and outcome-based curriculum model," where the course is built over a few months using a team with "diverse expertise including instructional designers, learning scientists, editors, multimedia specialists, subject matter faculty, student learning center representatives, librarians, and instructional technologists." The course is completely developed by the team of collaborators and the instructor "receives that course two weeks prior to the start date of the course." Two participants also emphasized that it is "not the job of the instructor to provide technical support," although they should be able to point students to resources for help and support. They asserted that all universities offering online courses should have technical instructions and resources within the Learning Management System for students, for example, in areas such as "how to upload files," "how to submit assignments," and "how to use collaborative learning spaces, whether synchronous or asynchronous."

Course Manager. Three participants mentioned course management as the main responsibility of the online instructor. As one explained**:**

> …that's just my term for any of the nuts and bolts. Things such as providing content in whatever form, if it is a video or an online lecture, text on a page, and then also grading, collecting assignments, encouraging students who are not attending, all that sorts of behind the scenes. Here at my institution, we do attendance. If a student doesn't check in in some way, once a week, then they are counted as absent. That is kind of an interesting thing I had to get used to here. That's what I call course delivery.

Subject Matter Expert. Four of the eight faculty interviewed viewed the role of the online instructor primarily as a content expert or subject matter expert. They found it important to demonstrate their content expertise in the instructional design, choice of content, and connection of content to current events or practice. One participant stated that this role requires the instructor to stay abreast of research, techniques, and theories behind why certain practices are useful.

Mentor. Three participants also viewed themselves as a mentor or a coach who not only taught a course but also advised students about their academic and professional development. One participant described him/herself as "the person who tries to instill what the profession is about" because the courses she teaches are more professionally oriented. Another participant described this as some of the hats that the instructors wear and elaborated,

> I end up having conferences with students involving their writing. I also find myself mentor to some students, online students, really speaking to them about career goals and career paths as adviser. It seems to be the case that my online students really seek me out in this regard, I don't know exactly why. But they often times look for advice in terms of both course offerings and just strategies within the online program. And also advise post- graduation and also career advice. I actually spend a fair amount of time with a lot of my students talking about tons of issues really apart from the course.

Similar to their responses about the online instructor role, participants believed that their main responsibility was to create an effective and productive learning experience for the students. They did this by engaging students, ensuring student interaction, being responsive in all communication areas of a course, and providing detailed instructions and expectations. One participant stated that instructors have to be "more intentional online" in order to facilitate learning for all types of learners. Another elaborated:

> My main responsibility is to be able to leverage the affordances of the technologies that I'm using to really engage the students to make the course meaningful, to make it engaging, to make it as interactive as possible. To make sure that there are meaningful learner interactions, learner-instructor interactions, you know learner-group interactions, learner-content interactions, to be able to make all these interactions happen in a meaningful way in a way that they support the learning outcomes for the course.

Another key responsibility, particularly in fully asynchronous courses, is to have a presence that the students feel. One participant expressed that there needs to be some "kind of a personal connection" where it is the responsibility of the instructor to connect back to bridge the disembodiment potential in online education.

Table 3.

Roles and Responsibilities of Online Instructors

(1) Facilitator	• Create a welcome video • Include "early activities" to make students comfortable with the technology • Check in with students regularly • Get in touch with students to motivate them to complete the course • Help students manage time • Help students develop self-regulated learning skills • Hold online office hours • Be quick and responsive to individual students needs • Communicate in synchronous and asynchronous modes when required, e.g. texting • Be present in discussion forums • Use formative assessment in the form of quizzes, discussion posts, online meetings or synchronous sessions, short papers, projects, etc. • Provide timely, actionable, and substantive feedback • Be present and available • Model for students what it means to participate online • Foster student engagement, interest, and interaction (e.g., authentic projects, interactive experiences) • Use media to enhance student interest
(2) Course Designer	• Establish learning objectives • Use active learning strategies to promote excitement and engagement • Align course design to content and delivery approach • Ensure accessibility and ADA-compliance • Develop a course shell • Adopt a design-based approach to improve courses • Point students to resources for help and support
(3) Course Manager	• Provide content (e.g., video, online lecture, text on a page) • Grade and collect assignments • Encourage students who are not attending • Assess student learning (e.g., formative assessment) • Reflect on course design
(4) Subject Matter Expert	• Demonstrate content expertise • Stay abreast with research, techniques, and theories behind why certain techniques are useful
(5) Mentor	• Advise students on their academic and professional development. • Instill what the profession is about • Be professionally oriented • Have conferences with students • Advise on career goals and career paths • Advice on course offerings

Tasks Performed by Online Instructors

When asked to describe their common tasks, participants' responses fell into two areas: course design or teaching.

Course design. Tasks commonly performed by online instructors in the area of course design were structuring and organizing an online course, finding and selecting content, making decisions about what content to include and exclude, creating course activities, chunking the content appropriately, developing materials and activities, designing assessments, and developing syllabi. Reviewing the previous offering of a course to make revisions to the planned offering was also a task mentioned by some participants.

Teaching. Common tasks performed by online instructors at the beginning of an online course were to welcome students, get to know them, and to get to know their challenges. A welcome video and/or discussion forum were common strategies used by the participants. One participant sends out a survey during the first week of class that requests students' preferred contact information and asks basic demographic questions. The participant explained his strategy:

> I think the two most telling questions are described in one word—"how are you feeling about this course?" And with that one question, I get responses that are usually in the neutral or positive category but sometimes I'll have students usually in every class that says nervous or anxious and that allows for me to reach out for them so the effort to be aware of their needs and make that connection early on, support that kind of social emotional connection and then the last question that I ask is, "Is there anything I need to know about you in this class?" that allows me to identify the first week the students who have shared with me that they're pregnant and they're gonna give birth halfway thru the term. I had a student who had epilepsy who had concerns about speaking because she had you know slurred speech. Those kinds of concerns that normal students wouldn't say, "hey, this is what's going on with me!" for me to be aware and ask those questions does really help me to come in and provide that emotional support which is really important.

Interacting with students, facilitating discussions, and actively making efforts to identify what's going on were other teaching tasks that participants mentioned. One participant makes it a practice to summarize online discussions after students have completed them. He elaborated as follows:

> [I would] facilitate the discussion, if it's a blog I would comment on their blogs, I would also have them provide peer comments in their blogs, I would synthesize the blogs in the end to try to tell them what knowledge it has generated for the class. I would be the facilitator of those learning activities, the aggregator, and the synthesizer after you know I've designed it.

Participants routinely provided direct feedback, tried to be empathetic, and always tried to be visible, often using audio or video to communicate with students or provide feedback. One participant shared:

> So being actively present and engaged and be visible. By visible I mean through voice and/or video so that students have a sense of you know: they can hear the intonation in your voice, they can see you. Let the student know that you've heard or understand them. And so that's something that I've had a lot of success doing that with the tool that I use called VoiceThread because it allows for me to be present in voice and I can provide direct feedback to students.

Competencies of Online Instructors

Participants were asked two questions about the competencies needed by online instructors: a general question about the competencies needed by online instructors to fulfill the roles they had mentioned, and a question about the technical competencies needed by online instructors. The technical competencies brought up by participants are first presented in this section, followed by the general competencies: willingness to learn, knowledge of how people learn, content expertise, course design skills, and student learning assessment skills.

Technical skills. Participants listed the ability to use the learning management system (LMS) to design and teach the course, and other technology skills (E-mail, navigate browser windows, file upload and download, and PDF creation) as both basic and essential for online teaching. The development of audio and video materials was a skill declared by all participants to be important.

Online instructors should be able to create videos and Screencasts quickly and on their own, if necessary, in order to model for students "what it means to actively participate in the use of technologies." Further, knowing how to record others and themselves with a microphone, how to record voice with PowerPoint, how to use free tools for Screencasting, and how to use a webcam with the LMS were perceived as critical. One participant highlighted the connection between online instructors' comfort level with technology to teaching strategies needed in the online environment such as creating or uploading videos, providing online feedback, and using collaborative technologies. Another participant emphasized the importance of not only technical skills, but the affordance of the technologies that could be used in an online course. Such knowledge, according to a third participant, could help online instructors access and use technologies to create additional materials if students had difficulties in a course.

Finally, technical writing was mentioned by one participant as crucial for the creation of video and audio materials, which require different means of communication with students than in person. He stated, "They should be able to write for the web and writing for the web is not the same as writing a paper for an academic conference. They should be able to write or look at things from a visual perspective, in terms of graphic design and make things."

The willingness to learn. The competency most often mentioned across the eight interviews was online instructors' willingness to learn and grow, with respect to both pedagogy and technology skills. Making the move to teaching online from teaching on-campus, according to the instructors interviewed, necessitated "being able to see oneself as an online learner," who grows constantly. They stated that instructors need to take the time to learn about online learning and teaching. One participant stated, "That willingness to go from a role of subject-matter expert which often times is really that the way they've seen themselves, is kind of the crux of their capacity as a faculty member in a classroom and in an online classroom. To do it effectively it requires so much more than that." Another asserted that the desire to teach well was crucial: "You need to have the desire to help facilitate students to learn and be very, very engaged and dedicated to those students and the mission." Online instructors' willingness to allot time to learning to teach online has to also be accompanied by the understanding that "if they want to be successful in an online teaching space they need allocate more time than they are used to in a traditional course," according to one participant, "because interacting with students in an online medium requires a lot of time and presence."

The willingness to learn how to use technology and to experiment with technologies was considered an important competency by several of those interviewed. This helps instructors "synthesize and analyze which piece of technology is going to work and which is not," when

teaching online. The willingness to learn can also help faculty feel comfortable with technologies needed to teach online and assist students if they have technical problems. For participants, the willingness to learn and try new technologies reflect "risk-taking and a growth mindset," "a willingness to make mistakes and learn from those mistakes instead of feeling shameful that they did something wrong," and the "willingness to be exposed to new things."

Three participants stated that in addition to new technologies, instructors should keep up with the latest research about online teaching. It is important for them to "stay abreast with research, to stay up with different techniques, not just the bells and whistles of a class, but some of the theories and research behind why things are useful." In order to do so, instructors should participate in training in these areas.

Knowledge of "how people learn." A key competency, according to participants, is an understanding of how people learn and how students learn online. They gave various examples of what it means to understand how people learn. One participant explained,

> You don't need to be a learning scientist, but you need to understand how people learn. For instance, some people may learn better with synchronous sessions, they need the immediacy of the feedback and that really increases their capability to add on to that pyramid of learning. As they pull in new skills, they kind of categorize that in their minds, so you need to have both. You need to have the content expertise, but you need to have an understanding on the way that the students learn.

Another participant stated that understanding how students learn and how to teach online students is needed to engage them in the course. A third participant explained that he believed in learning styles and developed and evaluated courses once they finished according to those styles. For example, he uses podcasts to convey his expertise, especially for those students whose preferred style of learning is auditory. He includes projects so that students complete an activity. He is also very cognizant of "social versus solitary" learning styles, so he designs his courses to include activities that address both these styles. He said,

> what I do is mix it up so that they will have a chance to be social and solitary if they want to. So, when they submit their essays to me as a solitary activity, the social activities would be a poster story online and I have students who resist that at first. It's one of the requirements for the course, you have to post in the class email list, and they have to look at it and critique it and talk with each other.

Content expertise. Participants believed that being an expert in the field—knowing the content or subject matter—is important, but that online instructors additionally needed to understand how to "deliver the content appropriately" through the online medium and to facilitate learning. One participant explained, "That competency would involve understand[ing] the content and then being able to deliver it and translating that knowledge into teaching. Just because we teach, doesn't mean they are going to learn."

Course design skills. Instructional design skills are an essential competency for online instructors, according to the participants, even if they have access to instructional designers at their institution. Knowledge of backwards course design and web accessibility regulations are needed not only to design, but also to facilitate a course. Specific design areas mentioned by participants were the ability to

- write learning objectives
- chunk content into manageable parts

- develop lessons in a logical sequence
- assess students formatively to ensure progress

They also highlighted that online instructors have to understand and be competent to create community among online students or build social presence. This included creating an "online environment that is safe, that is something that students feel comfortable participating in." One participant had a golden rule for netiquette, set up "very early on" in an introductory session in a course. These rules included what could be said or not said on discussion boards and when communicating with the instructor and peers.

Assess student learning. The ability to design assessments and provide feedback that helps students progress was identified as an online instructor competency by the participants. While several participants emphasized the provision of feedback, two pointed out the importance of assessment design, as evidenced in this comment,

> …how do you set up a learning objective and design an assignment and know at the end of that assignment that the student met that learning objective; so there's a design element to creating the content and learning experience for the student and when I say assessment the faculty members needs to be able to do two things, one is assess student learning and two assess their own assignment to know if they've gotten students to go where they wanted it to.

Participants highlighted the provision of timely, consistent individual and group feedback, and the ability and understanding that student data can provide information about student progress as essential for online instructors. Taking the time to give meaningful feedback and provide it in various ways was also considered important in the online environment. One participant explained:

> They get short audio files in which I'm talking to them and as well having them read the written comments I've given them. So, I think that faculty need to know the tools to help them reach the students. We have students now, who expect that they use these things all the time, and they expect more from us.

Table 4.
Competencies of Online Instructors

(1) Technical Skills	• Use a learning management system (LMS) to design and deliver courses • E-mail • Navigate browser windows • Upload and download files • Create PDFs • Develop of audio/video materials (e.g., screencasts, videos) • Record others and themselves with a microphone • Record voice narration with PowerPoint • Use free tools • Use a webcam • Provide online feedback • Use collaborative technologies • Create additional materials for students experiencing difficulties • Write for media and the web to communicate in video and audio formats (i.e. Technical writing) • Communicate with a visual perspective

(2) Willingness to learn	• Grow in pedagogy and technology skills • Make the move to teaching online from teaching face-to-face • See oneself as a learner • Embrace oneself as a life-long learner • Allot time to learn about online learning and how to teach online • Have the desire to teach well, to help facilitate student learning, to be very engaged, and to be dedicated to students and the mission of the school • Experiment with technologies • Willingness to make mistakes and learn from mistakes • Be exposed to new things • Stay abreast with the latest research, theories, techniques on teaching online • Participate in training
(3) Knowledge of "how people learn"	• Understand how students learn in synchronous and asynchronous modes • Develop a mix of activities for various learning styles (e.g., social vs. solitary, oral vs. visual) • Evaluate courses according to learning style
(4) Content Expertise	• Be an expert in the field • Know the content or subject matter • Understand content to be able to deliver it effectively for learners • Translate content knowledge into "teaching"
(5) Course Design	• Instructional design skills • Knowledge of backwards course design • Knowledge of web accessibility regulations • Write learning objectives • Chunk content into manageable parts • Develop lessons in a logical sequence • Assess students formatively to ensure they make progress • Create a community among online students • Build social presence • Create online environments that are safe and comfortable • Instill rules for netiquette
(6) Assess student learning	• Design assessment for courses • Provide timely, meaningful, and consistent feedback • Evaluate and revise assessments in courses • Provide individual and group feedback • Use student data to guide the feedback process • Provide information to students about their progress • Provide feedback in written, audio, and video forms

Acquiring Competencies for Online Instructors

In response to the question about what novice online instructors do to acquire strong competencies to be successful in online learning, all participants mentioned some form of professional development, either at one's own institution, within a professional organization, or

alone. They asserted that faculty members who use technology for their own learning and research, have engaged in online activities and webinars, or have taken a Massively Open Online Course (MOOC), are more likely to become expert online instructors, as are those that possess a student-centered teaching approach.

Professional development within an institution. Participants shared that the instructor's own institution is the first place to begin acquiring competencies to successfully teach online. They shared the different types of professional development available at their own and other institutions (e.g. in centers of teaching excellence), such as workshops, programs for online teaching, and initiatives about peer teaching. They asserted that it is important for an online instructor to be proactive and take advantage of resources at their own institution.

Several institutions offer faculty workshops or programs for learning to teach online. A fundamental component of such programs is that faculty members learn about online teaching within an LMS and as online learners. One of the participant observed that this was valuable because "experience of being an online learner can help them understand the frustrations that students can experience as well as reflects for them that this environment can really work well for delivering curriculum to students." Other components of such training that participants highlighted are understanding student learning, best practices in online teaching, engagement strategies, and new technologies. They further shared that observing and discussing excellent online courses, conversations with excellent online instructors, or formal reviews of peer online teaching (within and across disciplines) were also innovative strategies used by some higher education institutions.

Professional development with a professional organization. Several professional organizations such as the Online Learning Consortium and Quality Matters offer webinars, workshops, certificates, and other forms of professional development in online teaching. Participants highly recommended participation in professional development to learn about theories that underlie online teaching, the instructional design process, the affordances of learning technologies, and establishing presence in an online course. More importantly, they stated that such an experience provides exposure to "sophisticated online courses," experienced instructors, and an environment to talk to other instructors who are also learning. Instructors can then apply what they learn to their own courses.

Learning on one's own. Participants suggested that those who do not have access to professional development at their own institution can become expert online instructors by learning on their own. One participant stated, "If the institution doesn't have those materials today, find them yourselves. Sign-up for webinars. Look for opportunities to increase your knowledge. When you go to conferences, attend sessions in online learning and teaching."

Participants provided the following suggestions:

- Take the time to get to know and learn to use the learning management system.
- Find resources that can help you become a better online instructor.
- Be proactive in searching for materials.
- Be reflective about online teaching. Review a course to identify what is working.
- Become an expert in data that can provide information on how students are learning.
- Learn to correlate what is being done in an online course to how students are learning.
- Partner with a colleague to review each other's online courses and provide suggestions.
- If there is a strong online course within the institution or department, request to view it.
- "Stick with it." Try new strategies and situations in order to understand what works.

- Take an online or open online course.

Table 5.
Tasks of Online Instructors

Course Design	Teaching
• Structure and organize an online course • Find and select content • Make content decisions • Define course activities • Chunk content appropriately • Develop materials and activities • Design assessments • Develop syllabi • Review and revise previous course offerings	• Begin with a welcome activity (e.g., welcome video, discussion forum, student information survey) • Interact with students • Facilitate discussions • Comment on discussions • Summarize / synthesize online discussions • Provide direct feedback • Try to be empathetic • Be actively visible, present, and engaged • Use audio or video to communicate with students

Discussion

As evidenced by this study, we stand to gain a tremendous amount of knowledge from award-winning online instructors and their diverse teaching experiences. Following the template provided by both Bawane (1999) and Alvarez, Guasch and Espaso (2009), we identified the roles, competencies, and tasks of online instructors by interviewing eight award-winning online instructors from across the United States. We provide the following implications for consideration of both future research and practice.

Roles and competencies can vary across researchers in how they are represented (Bawane & Spector, 2009), but there are notably two common styles. Researchers study the roles and competencies of online instructors to better understand what is required to teach online. Some researchers describe competencies as "actor" roles (Thach & Murphy, 1995; Goodyear et al., 2001; Williams, 2003; Dennis et al., 2004; Aydin, 2005; Richey et al., 2005; Varvel, 2007), while others view competencies as categories of skillsets or areas of proficiency (Salmon, 2000; Reid, 2002; Klein et al., 2004; Shank, 2004; Richey et al., 2005; Bawane & Spector, 2009). While the early competency framework by Thach and Murphy (1995) very clearly delineates between roles and competencies, researchers later began to show overlaps when classifying roles and competencies. Bawane and Spector (2009) compiled a comprehensive list of online instructor roles and competencies by seeking out commonalities and eliminating overlaps from existing researchers. Their list no longer delineates between either of the two styles, but rather represents both actor roles and skill categories. In our exploratory study, the summarized list of roles and responsibilities (Table 1) and competencies (Table 2) derived from our interviews with award-winning instructors show some overlaps, but clearly delineate roles as "actor roles" and competencies as categories of skillsets or areas of proficiency.

Online course facilitation, design, and evaluation are most commonly represented in the current and previous research as a pedagogical role or competency. In the current study, the most important role mentioned by interviewees was that of facilitator. Previous researchers have found that facilitation is a critical role for instructors to implement instructional strategies

(Bawane & Spector, 2009) and can vary as an instructor (Dennis et al., 2004; Egan & Akdere (2005); Thach & Murphy, 1995; Williams, 2003), process facilitator (Aydin, 2005; Goodyear et al., 2001; Reid, 2002), and content facilitator (Dennis et al., 2004; Goodyear et al., 2001). Our findings show that the facilitator role extends beyond just course delivery, and includes broader pedagogical tasks of welcoming students, helping students manage time and feel comfortable, being responsive to students' needs, being "present" in online activities or forums, communicating/checking in with students regularly, assigning activities and formative activities, providing timely, actionable, and substantive feedback, and fostering student engagement, interest, and interaction. Anderson et al. (2001) suggested that teaching presence can be achieved through "the design, facilitation, and direct instruction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (Anderson et al., 2001, p. 5).

Online instructor roles vary according to the various points in time of an online course. Our findings indicate that online instructors take on several roles at different times of the course where, in some cases, the instructor is a course designer, facilitator, or teacher, while at other times, the instructor is required to be a mentor, "cheerleader," and even a "rule-setter." While most of the studies in the literature list key roles and competencies, Abdous (2011) found that it was unclear how the roles and competencies mapped back to the teaching process and that this created a source of confusion and mismatched expectations for instructors teaching online. Abdous (2011) proposed to map instructor roles and competencies to various stages of the teaching process, suggesting a process-oriented framework describing online teaching as three sequential, non-linear/iterative phases with specific competencies: (1) before: preparation, planning, and design; (2) during: facilitation, interaction, and feedback; and (3) after: reflection. With this framework, more targeted professional development training can be provided for instructors.

Our study reveals roles, competencies, and tasks that align to each phase of the teaching process. Participants indicate that it is the instructor's role to plan and design courses, to demonstrate various design tasks (Table 3) to develop a syllabus, to establish learning objectives, to use backwards design to align course objectives to content and delivery approach, to integrate active learning, to ensure accessibility and ADA-compliance, to chunk content into manageable parts, to select content and develop lessons in a logical sequence, and to develop materials and assessments. This first phase is critical in providing the online course with a structure (Abdous, 2011). One relevant competency that aligns to planning and designing courses is acquiring a strong knowledge of how people learn (Table 2) in synchronous and asynchronous modes to better develop a mix of activities for various learning styles.

Our interviews strongly emphasize the role of facilitator during the actual teaching of the course. In this phase, instructors are expected to perform various teaching tasks (Table 3). Adbous (2011) explains that in this phase, facilitation, interaction, and feedback become the core activities of online teaching. Additionally, instructors need to "share, listen, answer questions, and show enthusiasm, while paying careful attention to students' needs, providing direction, and drawing students toward active engagement and participation in the discussion" (p. 67). Similarly, our participants indicated that instructors need to welcome students, model and initiate discussions, respond with comments and summaries, be actively visible, present, and engaged, and use audio or video to communicate with students. Our participants also discussed the importance of providing timely, actionable, and substantive feedback, through formative assessment strategies of quizzes, discussion posts, online meetings or synchronous sessions, short papers, projects, etc. Bawane and Spector (2009) describe that instructor role of evaluator is necessary to monitor and

assess performance. Many researchers further describe the role also as an assessor (Aydin, 2005; Goodyear et al., 2001; Dennis et al., 2004; Varvel, 2007).

Our study emphasizes the need for instructors to maintain a strong willingness to learn and grow in their pedagogical and technology skills. This requires seeing oneself as a lifelong learner, allotting time to learn about online teaching and learning, staying abreast of the latest research, theories, and techniques of teaching online, experimenting with technologies, making mistakes and learning from them. Abdous (2011) frames these as continuous learning tasks in the "after" phase of the teaching process, expecting instructors to reflect and note lessons learned.

Online instructor roles vary according to available institutional support and structures. The course designer role and competency commonly appear in the literature on online teaching roles and competencies. In fact, Thach and Murphy (1995) indicate that it is a major role parallel to an instructor and administrator, distinguishing it from supporting instructor roles such as librarian, editor, technician, graphic designer, and support staff. While the literature on instructor roles and competencies suggests that a broad range of skills are needed by faculty members who teach online, those competencies perceived as important to an instructor will vary in practice by institution, particularly dependent on the online education model being implemented (Williams, 2003), academic discipline (Darabi, Sikorski, & Harvey, 2006), professional development and support available (Bawane & Spector, 2009a), and delivery modes (Williams, 2003). For example, higher education institutions with small online course development support teams will offer less support for instructors and require faculty members to do more (or almost everything) on their own; this implies that instructors will need to perform more roles and acquire additional competency skills in order to plan, design, develop, facilitate, manage, evaluate, and revise online courses on their own. However, higher education institutions with larger online course development support teams may take over some of those "supporting" roles (Thach & Murphy, 1995) that faculty members are expected to assume. In effect, development teams consisting of librarians, editors, graphic designers, and instructional designers in such institutions have begun to collaborate with faculty members to assist or redistribute the workload required for online course design, development, and revision. Centers for teaching and learning offer the resources and support required for faculty to be engaged in collaborative course development programs. With such emerging structures in higher education institutions, instructors are expected to largely play the role of subject matter expert (Table 1) and require content expertise (Table 2). As Thach and Murphy (1995) have indicated, instructors will require competency in interpersonal communication, planning skills, collaboration/teamwork skills, as well as knowledge of distance education, and basic technical skills.

Mentoring is critical during the online teaching process. It is in the "during" phase of the teaching process (Abdous, 2011) where instructors are expected to mentor or advise students about their academic and professional development, going beyond just "teaching." Our interviewees viewed themselves as mentors who try "to instill what the profession is about," speaking to students about career goals and pathways. While the adviser/mentor competency or role was not included in earlier competency framework of Thach and Murphy (1995), the mentor role, also represented as advisor or counselor was included in later research (Goodyear et al 2001, Dennis et al 2004, Aydin, 2005; Bawane & Spector, 2009). Aydin (2005) further describes that online mentors play the role of "academic advisor" in providing pedagogical support to students by guiding students on assignments, answering assignment-related questions, and assessing assignments. In addition, they are expected to solve technical problems or direct them to related support services (Aydin, 2005).

Limitations

There are several limitations to this exploratory, qualitative research study. First, the study had a sample size of only eight award-winning online faculty members. The pool of award-winning faculty is clearly limited by the number of award winners in the two professional associations used in the present study. These faculty members were selected from well-established professional associations in online learning spaces, thus adding credibility to our inclusion criteria. Although the sample size is small, the data collected from these individuals are the essence and focus of the research study. Second, in this qualitative interview, the researchers depended on participants' ability to accurately recall and describe details about their award-winning online courses. Some of the faculty had not taught this course in a while due to moving to administrative positions or due to other job responsibilities and this might have affected their ability to recall all the details about their course. However, not all of the interview questions specifically aligned with the faculty members' online course specifically, as some questions were broader and tapped the faculty members' perspectives on the topic of competencies and roles of online instructors. Third, due to time constraints of the participants, we were unable to do a respondent validation of the interviews (i.e., member-checking), which would have potentially strengthened or enhanced the accuracy, credibility, and transferability of our findings.

Future Research

There remain many unanswered research questions in the realm of online learning. This article has contributed to our understanding of the roles and competencies of online instructors as described by award-winning online faculty members from across the United States. This research has opened new doorways to future research opportunities in the online learning community. Award-winning faculty perspectives about online learning offer a credible data source for researchers to examine on a wide variety of topics. In this study, we chose to focus on the roles and competencies of online instructors. In related research, we are exploring the design, organization, facilitation, and assessment of courses by award-winning faculty. Future research could choose to examine other constructs, such as course delivery systems and modalities, salient design features, facilitation strategies, or even differences among content areas (e.g., arts, sciences, mathematics, etc.) taught online. Award-winning online instructors are a credible and valuable source of information about online learning.

Building and extending on the roles and competencies described in the present study and aligned with current and past research, future research should aim at building a measurement system to validate the roles and competencies identified. By validating the roles and competencies on a wide array of experienced online instructors, we can begin to group, rank, and sort the various items into useful information that can assist with the orientation and ongoing professional development of online instructors. Further, such a measurement system could be used to correlate data to other known behaviors and measures of online teaching and learning to provide convergent and discriminant validity evidence. This type of information is valuable not only to researchers, but to online instructors and administrators of online programs.

Conclusion

It is our hope that this research adds to the ongoing discussion about the roles and competencies of online instructors. Novel to this research is the credibility of our data source—award-winning online instructors. As researchers, instructors, instructional designers, and administrators continue to grapple with the problems and opportunities offered by online learning spaces, we must continue to learn from each other and share experiences that can help shape the 21st century learning environments.

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Integrating UDL Strategies Into the Online Course Development Process: Instructional Designers' Perspectives

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Abstract
This qualitative case study design examined the perspectives that instructional designers at a four-year research institution in the Mid-Atlantic region of the United States have about integrating UDL strategies into the online course development process. The participants were six individuals involved in the online course development process: four of the participants were instructional designers working for the Instructional Design Team, one participant was an assistant program manager in the Office of Distance Education, and the other was an instructional designer working in the College of Health and Human Services. The interviews focused on the participant's perspectives on the integration of UDL strategies and how they believe faculty perceived such practices. Using a series of semistructured interviews and document analysis, three distinct themes emerged: (a) the importance of the instructional designer–faculty member partnership, (b) the number of factors impacting faculty adoption of UDL strategies in their online courses, and (c) faculty resistance to changes in how classroom accommodations are addressed in the higher education classroom. In addition to highlighting factors impacting the integration of UDL strategies, the findings also revealed techniques that could be useful in improving faculty adoption of such practices.

Keywords: online learning, accessibility, UDL, universal design, disability, distance education, higher education, online course development, instructional design

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Integrating UDL Strategies Into the Online Course Development Process: Instructional Designers' Perspectives

Disability support services (DSS) in higher education is situated in the "medical model" as it relates to supporting students with disabilities (Burgstahler, 2012). In other words, a student with a disability (SWD) must register with the DSS office and provide medical documentation supporting their disability before classroom accommodations (e.g., extended time on exams/quizzes) are authorized. Unfortunately, research shows faculty members are often confused about their role in the accommodations process (Burgstahler, 2007; Izzo, Murray, & Novak, 2008; Silver, Bourke, & Strehorn, 1998) and that many accommodations require faculty members to

retrofit or modify existing instructional materials (Aguirre & Duncan, 2013; Izzo et al., 2008; Kumar, 2010) to ensure equivalent access.

To address this issue, many disability services professionals have touted inclusive teaching pedagogies like Universal Design for Learning, or UDL, as a viable strategy for improving access to instructional resources for SWDs (Dallas, Upton, & Sprong, 2014; Higbee & Goff, 2008). UDL was developed by the Center for Applied Special Technologies (CAST) in the 1990s (CAST, 2011). It is a set of guidelines that encourage instructors to create a flexible, equitable learning curriculum that meets the needs of a diverse body of learners without the need for customization or retrofitting. In recent years, the perceived benefits attached to implementing UDL principles and practices in the higher education classroom (face-to-face, hybrid, and/or online) to support SWDs, particularly those with learning disabilities and other cognitive impairments (e.g., ADD/ADHD, psychological), are clearly documented (Burgstahler, 2011; Gradel & Edson, 2009; McGuire & Scott, 2006; McGuire, Scott, & Shaw, 2003). Additionally, the research supports that UDL interventions are positively perceived by both instructional faculty (Catalano, 2014; Grabinger, Aplin, & Ponnappa-Brenner, 2008; Habib et al., 2012; Rao & Tanners, 2011; Seok, DaCosta, Kinsell, & Tung, 2010) and students (Baker, Cimini, & Cleveland, 2011; Habib et al., 2012; Rao & Tanners, 2011; Schelly, Davies, & Spooner, 2011; Seok et al., 2010; Simoncelli & Hinson, 2008; Vajoczki et al., 2014; Yang, Tzuo, & Komara, 2011). Despite this growing body of evidence, instructional faculty have still been slow to adopt UDL.

To date, we have identified only one study examining the underlying issues impacting the adoption of UDL strategies by instructional faculty (Moriarty, 2007). More research is needed to address this gap. This paper highlights a qualitative case study design examining the perspectives that instructional designers (IDs) at a 4-year research institution in the Mid-Atlantic region of the United States have about integrating UDL strategies into the online course development process. At this institution, IDs are a critical part of the online course development process, guiding and supporting faculty through each phase of this process. As such, they play a pivotal role in the integration of UDL strategies. This study seeks to offer insight into the experience of IDs when it comes to integrating these strategies into the online course development process.

Review of Related Literature

In the following sections, we will discuss universal design versus the medical model and the relevant literature surrounding the integration of UDL strategies by instructional faculty in higher education. Additionally, we will highlight existing online course development practices at the institution.

Universal Design Versus the Medical Model

The success of the medical model relies heavily on the student disclosing that they have a disability and require accommodations to support their needs in the classroom. Without that disclosure, it is likely many SWDs will not have what they need. This is where UDL comes in. UDL originates from the term Universal Design (UD), which is defined as "the design of products to the greatest extent possible by people of all ages and abilities, without the need for customization or specialized design" (Burgstahler, 2012). UD was conceived by a group of architects, engineers, and environmental designers at North Carolina State University's Center for Universal Design (CUD) in 1997 and is built on seven core principles: (1) equitable use, (2) flexibility in use, (3) simple and intuitive use, (4) perceptible information, (5) tolerance for error, (6) low physical effort, and (7) size and space for approach and use ("The Center for Universal Design - Universal Design

Principles," n.d.). An example of UD in the physical environment would be curb cuts or automatic doors. While certainly beneficial to individuals with physical impairments (e.g., those who use a wheelchair), these adaptations are also helpful to individuals pushing strollers or those with issues negotiating obstacles like stairs or heavy doors. Many curb cuts also incorporate yellow markings and textured surfaces to make them easier for individuals with visual impairments to identify.

UDL was first introduced by CAST in 1998 with the goal of extending the principles of UD into the educational space. UDL consists of three core components: (1) multiple means of engagement, to tap into learner's interests, offer appropriate challenges, and increase motivation; (2) multiple means of representation, to give diverse learners options for acquiring information and knowledge; and (3) multiple means of action and expression, to provide learners with options for demonstrating what they know (Rose & Gravel, 2012). It is built around the idea that universally designed curricula make it possible for students to have full access to course content despite physical limitations, learning disabilities, behavioral problems, or language barriers (Chodock & Dolinger, 2009). Examples of UDL in the online environment could include the use of simple things like a Welcome/Start page and/or a brief video orienting learners to how best to navigate the online course. Other examples include captions and transcripts for videos or accessible documents that ensure all learners have equal access to course materials. These are some of the reasons that UDL is widely viewed as an attractive pedagogy for supporting the broad educational needs of postsecondary SWDs.

Additional Universal Design in Education Models

Unlike UDL, which encourages flexibility in the design of instruction, researchers intended Universal Instructional Design (UID) and Universal Design for Instruction (UDI) to offer faculty members a structured plan with respect to designing inclusive classroom instruction. The thought was that this more prescriptive approach would improve the likelihood that these practices could be adopted on a larger scale by postsecondary education faculty. UID incorporates many of the common instructional accommodations that SWDs request from faculty members (e.g., extended time, copies of lecture notes, etc.) into the overall instructional design for the course (Silver et al., 1998). It was thought that this would eliminate the need for these students to have to request services from the disability support service office because those supports would already be built into the instruction.

McGuire, Scott, and Shaw (2003) developed UDI by adapting UD specifically to promote inclusive teaching practices by faculty in postsecondary education. They use the same seven principles as in UD (i.e., flexibility in use, low physical effort, etc.), but adjusted the definitions to focus on instruction and added two additional principles: (8) a community of learners and (9) instructional climate (see Table 1). While the initial seven principles focus more on the flexibility and design of the instruction, these last two principles ensure that the students remain engaged in the classroom.

Table 1
The Nine Principles of Universal Design for Instruction

Principle	Definition
Principle 1: Equitable use	Instruction is designed to be useful to and accessible by people with diverse abilities. Provide the same means of use for all students; identical whenever possible, equivalent when not.
Principle 2: Flexibility in use	Instruction is designed to accommodate a wide range of individual abilities. Provide choice in methods of use.
Principle 3: Simple and intuitive	Instruction is designed in a straightforward and predictable manner, regardless of the student's experience, knowledge, language skills, or current concentration level. Eliminate unnecessary complexity.
Principle 4: Perceptible information	Instruction is designed so that necessary information is communicated effectively to the student, regardless of ambient conditions or the student's sensory abilities.
Principle 5: Tolerance for error	Instruction anticipates variation in individual student learning pace and prerequisite skills.
Principle 6: Low physical effort	Instruction is designed to minimize nonessential physical effort in order to allow maximum attention to learning. Note: This principle does not apply when physical effort is integral to essential requirements of a course.
Principle 7: Size and space for approach and use	Instruction is designed with consideration for appropriate size and space for approach, reach, manipulations, and use regardless of a student's body size, posture, mobility, and communication needs.
Principle 8: A community of learners	The instructional environment promotes interaction and communication among students and between students and faculty.
Principle 9: Instructional climate	Instruction is designed to be welcoming and inclusive. High expectations are espoused for all students.

Note. Adapted from "Universal Design for Instruction: The Paradigm, Its Principles, and Products for Enhancing Instructional Access," by J. M. McGuire, S. S. Scott, and S. F. Shaw, 2003, *Journal of Postsecondary Education and Disability, 17*, p. 13. Copyright 2003 by *Journal of Postsecondary Education and Disability*.

Due to their emphasis on flexible design and broadly addressing the needs of all learners, UID, UDI, and UDL are often used interchangeably. While some studies have leaned on the additional flexibility of UDL (Bongey, Cizadlo, & Kalnbach, 2010; Kumar & Wideman, 2014; Smith, 2012), which incorporates only three core principles, others have taken a more prescriptive approach by utilizing either UID or UDI (Rao & Tanners, 2011). To provide clarity going forward and eliminate any potential confusion, we will use the term *UDL* or *UDL strategies*. The term *UDL strategies* can encompass many things and is sometimes used interchangeably with terms like *accessible course design practices* or *inclusive design practices*. Examples include providing videos with captions and/or transcripts, designing course documents (e.g., Word, PPT, and PDF) that are readable using assistive technology applications (e.g., text-to-speech software), providing alternatives for demonstrating competency (e.g., writing a paper vs. providing an oral presentation, etc.), scaffolding, and so on. UDL broadly captures the principles espoused by all three models, including accessible design, while offering greater flexibility in how an instructor meets the needs of diverse learners within their classroom.

Implementing UDL in the Higher Education Classroom

Whether it is done to support SWDs (Aguirre & Duncan, 2013; Catalano, 2014; Dotger, 2011; Habib et al., 2012; Simoncelli & Hinson, 2008), students who speak English as a second language (Ragpot, 2011), or simply to create a more inclusive classroom environment (Kumar, 2010; Nielsen, 2013), research shows that both faculty and students have positive attitudes with respect to the implementation of UDL in the higher education classroom. Unfortunately, this has not translated into the widespread adoption of UDL strategies by instructional faculty. In this literature review, we will examine faculty perceptions about implementing UDL, barriers impacting faculty adoption, and existing strategies to improve faculty adoption.

Faculty perceptions about implementing UDL in the classroom. Faculty members generally have positive perceptions with respect to implementing UDL or inclusive teaching practices. The issue lies, often, in awareness and defining exactly what UDL or "inclusive" teaching strategies actually mean. Using the Inclusive Teaching Strategies Instrument, or ITSI (Appendix A), Lombardi, Murray, and Gerdes (2011) evaluated both faculty members' perceptions and actions with respect to implementing UDL strategies in the classroom. Findings showed obvious discrepancies between what faculty members positively perceived about using UDL techniques and what they were actually doing with respect to implementing those strategies. In other words, faculty members were saying one thing and doing something completely different when it came to their courses.

Dallas et al. (2014) used three subscales (Multiple Means of Presentation, Inclusive Lecture Strategies, and Accommodations) within the ITSI to assess faculty perceptions (not actions) with respect to providing academic accommodations and using inclusive teaching strategies, as well as to determine if there were any differences between faculty groups. Findings showed that faculty members generally held positive attitudes toward providing academic accommodations. This is consistent with previous studies evaluating this issue (e.g., Baker et al., 2011; Dy, 2005; Hong & Himmel, 2009; Rao, 2004). Additionally, they found statistically significant differences in their attitudes toward inclusive teaching practices on the Multiple Means of Presentation (MMP) scale for faculty who had more than 48 hours of prior disability-related training. This suggests that faculty members with disability-related training were more likely to incorporate inclusive design practices in their planning compared to those with no experience.

Barriers impacting faculty adoption of UDL. Only one study was identified that specifically evaluated faculty adoption of inclusive teaching practices. Moriarty (2007) carried out

a multisite, mixed methods study evaluating the barriers to the adoption of inclusive teaching methods by science, technology, engineering, and math (STEM) faculty in a community college environment. Quantitative findings suggested a positive correlation between faculty adoption of inclusive teaching practices and their comfort with technology and pedagogical competencies. Additionally, faculty members indicated that a lack of time was a critical factor in their ability to adopt and learn new teaching methods/strategies. Qualitative findings largely supported the quantitative findings in that faculty members overwhelmingly indicated that high teaching loads and a lack of time to develop new teaching methods were the greatest barriers to inclusive pedagogy.

While no other studies focused specifically on faculty adoption, researchers did mention findings related to this issue. Similar to Moriarty (2007), other studies found that the amount of preparation time involved in creating accessible course materials (Kumar & Wideman, 2014) and faculty members' limited knowledge with respect to teaching with technology (Aguirre & Duncan, 2013; Nielsen, 2013; Ye, 2014) were cited as barriers. An additional factor to consider is the lack of faculty awareness with respect to supporting SWDs in their courses (Aguirre & Duncan, 2013; Dotger, 2011; Habib et al., 2012; Kumar, 2010; Schelly et al., 2011). One could argue that if a faculty member were not aware that there is an issue with their current teaching practices, they would likely not consider implementing a new pedagogy. That is as much a barrier as those challenges that were previously identified.

Strategies for improving faculty adoption of UDL. To improve faculty adoption of UDL strategies, researchers have generally employed training interventions. Izzo, Murray, and Novak (2008) sought to measure faculty perceptions with respect to implementing UDL practices in the classroom to support SWDs. Using a web-based training module, faculty members learned about UDL and strategies for implementing such practices in the classroom. Pre- and posttest results suggested that the training was very well received, as the percentage of faculty members who reported having a moderate-to-high degree of UDL knowledge increased from 29% prior to the implementation of the training resource to approximately 94% after having participated in the training modules.

Likewise, UDL training interventions have proven effective in other studies as well. Both Davies et al. (2013) and Schelly et al. (2011) used students' feedback from pretests taken just 2–3 weeks into the semester to provide faculty members with focused UDL trainings (five total) over the course of the semester. As a result, posttest student responses indicated that they perceived that instructors implemented more UDL principles in the classroom after having participated in trainings. In particular, two major areas of instruction were impacted. First, instructors took more care to present concepts in multiple ways and provide course materials in multiple formats. Second, instructors spent more time summarizing key concepts before, during, and immediately after instruction. Thus, incorporating student feedback early in the course to aid in the course development process resulted in positive student outcomes.

These studies, while useful for evaluating the extent to which faculty members improved their knowledge with respect to implementing UDL strategies in the classroom, do have limitations, the most glaring being that there was no evidence that faculty members had chosen to incorporate that information into their teaching strategies in the semesters that followed. Although one longitudinal study attempted to address this by providing faculty participants with financial compensation (Moon, Utschig, Todd, & Bozzorg, 2011), concerns were expressed as to whether the practices would continue after completion of the study.

Course Development Context and the Research Questions

In this section, we discuss the basis for this research study and define the framework that will guide our inquiry. At the time of this study, two units played a critical role in the development and delivery of online courses and programs at the university: the DE Office, which is situated under the Provost's Office, and the Instructional Design (ID) Team, which is under the division of Information Technology Services (ITS). Some of the academic colleges and schools have faculty members and/or instructional designers playing a lead role in the development of online programs and services as well, but they focus primarily on their particular academic programs as opposed to the greater campus community. The DE Office partners with some of these programs, but still many others manage their online academic programs at the department level without support from the DE Office.

Existing course development models at the university. There are two predominant online course development models in place at the university: the 4-P process and the Online Course Development Institute (OCDI). Some faculty members and/or academic units design their own online courses without the support of the DE Office or the ID Team, but it is not clear what online course development model, if any, they are following.

4-P. The 4-P process for new DE course development was developed in 2010 by the DE Office and is a yearlong process of online course development consisting of four phases: (1) proposal, (2) production, (3) pilot, and (4) portfolio (Assistant Director of Distance Education, personal communication, September 25, 2015). Figure 1 details the process.

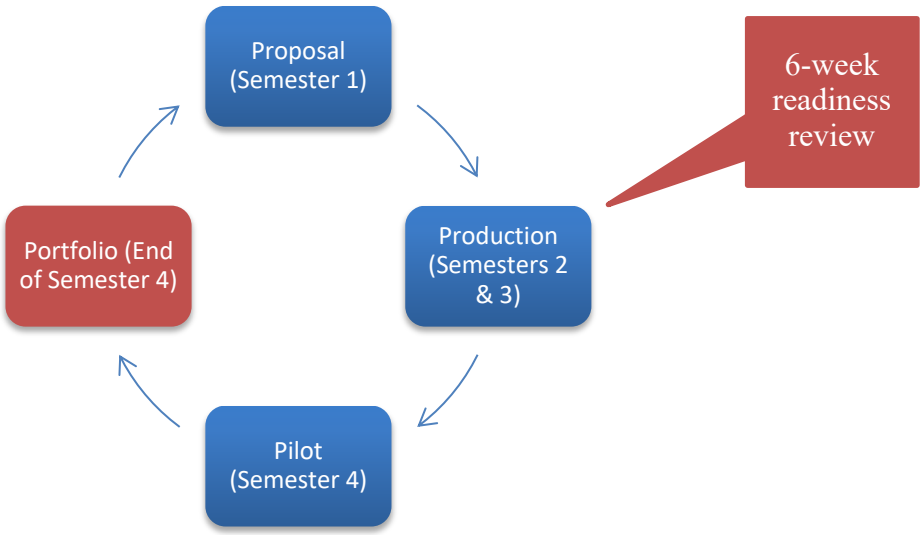

Figure 1. The 4-P process for new DE course development. Reprinted from Office of Distance Education, 2012.

The Provost's Office sends out a call for online proposals. Faculty members, with approval from their departments, submit proposals and, if accepted, are provided with a stipend for online course development and support from an ID throughout the yearlong process. Faculty members are provided with a great deal of support throughout all four phases of the development process.

During the production phase, faculty members receive guidance and resources from their IDs to aid them in the online course design and delivery process. As part of the course development

process, the DE Office conducts a readiness review of the course (see Appendix C) six weeks prior to the start of the pilot phase, the first semester the course will be taught online (Assistant Director of Distance Education, personal communication, September 29, 2015). Faculty members receive the course readiness checklist prior to the review, and the IDs guide them through meeting the course and/or department-related requirements.

OCDI. As an alternative to the 4-P course development model, in spring 2015, LSS piloted the OCDI. OCDI is a web-based, 6-week asynchronous program, exemplifying best practices in instructional design and theory-based research (ID manager, personal communication, 2015). The target audience for the OCDI is tenured, tenure-track, adjunct, and term faculty members and graduate teaching assistants currently planning to design and develop online courses that will be taught at the university (Assistant Director of Distance Education, email communication, April 27, 2015). The program is facilitated by IDs from the ID team and utilizes a cohort-based model (departmental or interdisciplinary) with 10–15 participants per cohort. The final product of OCDI is a completed course module that will serve as the template for the rest of the online course modules (includes content, activities, assessments, etc.). There is no follow-up beyond completion of the cohort, but faculty members are free to meet individually with instructional designers for ad hoc support (Senior instructional designer, personal communication, October 6, 2015).

Issues impacting the online course development process. The online course development process across the university is not entirely consistent. In other words, there is not one set standard for how courses are developed and exactly what elements (e.g., template, learning objectives, syllabus, discussion, document structure, video platform, accessibility, etc.) are required for an online course. For example, faculty members developing courses with support from the DE Office (i.e., following the 4-P process) are required to undergo a thorough course readiness evaluation and receive ongoing training and guidance over the course of a year from IDs. Faculty members enrolled in the OCDI receive similar support from IDs; however, participation is voluntary. The training is conducted over a much shorter time frame (i.e., 6 weeks), and the focus of the OCDI is on building out one module that would act as a template for each of the other modules developed in the course. While both are effective in preparing faculty members to develop online courses, neither follows a similar set of standards when it comes to the course development process.

Faculty members developing courses outside the purview of the DE Office or the Learning Support Office (LSS) are not necessarily subject to any review process. Some may have college, department, or program-specific standards that they must meet, but those standards are likely not in line with what is required from the 4-P process or the OCDI.

Incorporating UDL strategies into the online course development process. According to 4-P process course portfolio review results from the fall of 2014 (Assistant Director of Distance Education, personal communication, September 25, 2015) and spring 2015 semesters (Assistant Director of Distance Education, personal communication, September 29, 2015), Item 12 (i.e., *The course employs accessible technologies or strategies – e.g., alternative text, transcripts, closed captioning*) scored the lowest (i.e., 3.48 and 3.24, respectively) of the 30 items measured on a five-point Likert scale. This indicates that faculty members are not incorporating UDL strategies (e.g., alternative text for meaningful images, captions/transcripts for video, etc.) in their courses. What is not clear is why this is happening. Item 3 (i.e., *Syllabus and course schedule are thorough -- including major components such as outcomes, assignments, readings, grading policy, due dates, etc.*) scored roughly a point higher (4.42 and 4.26, respectively) and is described with equal nuance on the scoring sheet. However, course reviews are showing evidence that faculty members are

more likely to include thorough course schedules and syllabi when developing their courses than they are UDL strategies.

An additional concern is that faculty members who develop courses outside of the purview of the DE Office and LSS do not receive the same types of faculty development support on the integration of UDL strategies as those who do. The DE Office piloted an "open call" process in spring 2015 for faculty members developing courses outside of the purview of their office. The idea was to introduce those faculty members to the office and the types of services and support available to them. A review of those courses revealed similar findings to those developed by the DE Office (IT accessibility specialist, personal communication, May 20, 2015). In other words, faculty members generally did not include UDL strategies in their online courses.

Research Questions

The following questions informed this research study:

1. What perspectives do online course developers (i.e., DE Office, ID team, IDs, and instructional faculty within colleges and schools) at the university have about incorporating UDL strategies into the online course development process?
2. How do online course developers and instructional faculty teaching online courses at the university define *UDL strategies*?
3. What factors do online course developers perceive as impacting the adoption or rejection of UDL strategies by instructional faculty teaching online courses at the university?

Methods

This study uses a qualitative case study design examining the perspectives that IDs at a four-year research institution in the Mid-Atlantic region of United States have about integrating UDL strategies into the online course development process to support SWDs. Johansson, in Ruddin (2006), stated that a case study is an in-depth study of the particular, where the researcher seeks to increase his or her understanding of the phenomena being studied (p. 799). Louis Smith, in Stake (1995), added that a case study is "a bounded system" (p. 2). In other words, it exists on its own, which aids in defining the boundaries of the case. In this respect, this study focuses only on the perspectives of those IDs and administrators involved in the online course development process at the university.

Research Participants, Setting, and Relationships

This study focused on the perspectives of the IDs. The IDs play a crucial role both in the online course development experiences for many instructional faculty teaching online courses at the university and in supporting faculty on how best to integrate UDL strategies. Maxwell (2013) describes qualitative research as "focusing on specific situations or people, and emphasizing descriptions rather than numbers" (p. 30). Stake (1995) adds that the nature of qualitative research is for "promoting understanding" as opposed to explanation. Through a series of interviews and document reviews, the challenges impacting the integration of such practices at this institution were identified. Developing a better understanding of these challenges allows us to define strategies that would address potential gaps in services for SWDs.

Using purposeful and network selection (LeCompte, Preissie, & Tesch, 1993), six individuals were selected to participate in semistructured interviews. The interviews focused on the participants' perspectives on the integration of UDL strategies into the online course

development process. Four of the participants were IDs working for the ID Team, one participant was an assistant program manager in the DE Office, and the other was an ID in the College of Health and Human Sciences. According to LeCompte et al. (1993), network selection involves each successive participant or group being named by a previous set of participants. Interviews were first conducted with one of the senior IDs from the ID team and the assistant program manager for the DE Office. Both have played a critical role in advocating for the integration of such practices into the online course development process. To obtain a more in-depth understanding of the process at the university and the issues involved, each participant was asked to identify both colleagues that have been supportive and those that have been resistant (for one reason or another) to the incorporation of UDL strategies in online courses. To ensure anonymity, new participants were not made aware of how they were identified.

Data Collection

Qualitative data-gathering methods typically fall into three categories: observations, analysis of documents, and interviews (Banning, 1997). Two of these three methods were chosen for this study: semistructured interviews with each of the participants and document reviews of relevant source documents (i.e., DE Course Portfolio ratings sheets, OLC Scorecard feedback) from the DE Office).

Document analysis. In addition to semistructured interviews, document analysis was performed on the findings from the DE Course Portfolio ratings sheets (fall 2014 and spring 2015) and the OLC Scorecard feedback (see Appendix B for sample). These resources were covered at length in the introduction and informed the development of the interview protocol used in the six semistructured interviews (see Appendix D). Bowen (2009) states that document analysis involves skimming (superficial examination), reading (thorough examination), and interpretation, combining elements of both content analysis and thematic analysis. Content analysis is a method for classifying written or oral materials into identified categories (Hsieh & Shannon, 2005), while thematic analysis emphasizes recurring patterns or themes within the data (Braun & Clarke, 2006). Given the limited amount of data related to existing UDL strategies in the online course development process, no rubrics were used. The documents were skimmed to assess the current state of UDL strategies in the existing online course development models. These were used primarily to guide the development of the initial interview questions and triangulate the results of the semistructured interviews.

Semistructured interviews. Fontana and Frey (1998) define *structured interviewing* as a "situation in which an interviewer asks each respondent a series of pre-established questions with limited set of response categories." While useful for data collection and analysis purposes, it was desired that the interviews be more flexible and interactive. Semistructured interviews were desired, developing interview protocols that included open-ended questions about each participant's background, role at the university, role in the online course development process at the university, role in the integration of UDL strategies in online courses, perspectives on the integration of these strategies, and perspectives on faculty experiences addressing the integration of UDL strategies in their online courses. Appendix D elaborates on the specific questions that were asked.

Procedures. The initial participants, a senior ID from the ID Team and an assistant program manager with the DE Office, were directly solicited via phone. During the initial cold call, the purpose and scope of the study were explained, and each agreed to participate in the study. After the call, a follow-up email was sent with a copy of the informed consent form and a request

for potential interview dates. Once the consent form was provided, several emails were exchanged to determine an agreed upon date.

The DE Office provided access to the DE Course Portfolio Reviews from fall 2014 and spring 2015, as well as the most recent OLC Scorecard review that the DE Office had submitted. Upon receipt, the documents were reviewed for UDL-related findings with the goal of using the findings to inform the development of the initial interview protocol. Prior to the interviews, several emails were exchanged with the assistant program manager to confirm the UDL-related information and verify the accuracy of the data.

The initial two interviews were conducted within four days of one another. The interviews were conducted online using an online webinar tool (i.e., Blackboard Collaborate). Interview sessions were recorded for transcription. Both interviews lasted approximately 60 minutes. After completing the initial interviews, recordings were outsourced to a web-based transcription company, which completed the transcripts within 72 hours. Upon receipt of the two transcripts, responses were summarized by question type (explained further below), and the researcher followed up via phone and/or email with participants to ensure that the summaries accurately reflected what they had conveyed. Maxwell (2013) referred to this as *respondent validation*, or the systematic solicitation of feedback about your data and conclusions from the people that you are studying.

At the conclusion of each interview, participants were asked to suggest another individual or set of individuals that could offer a well-rounded overview of the online course development process from the perspective of the IDs. Vogt (1999) describes this as *snowball sampling*, and it involves each research participant providing the name(s) of subsequent research participants. This continues until an adequate sample size is identified. In this study, the process was repeated until four additional participants had been identified. Data analysis (see below) was conducted after transcripts from Interviews 3 and 4 were created and, again, after Interviews 5 and 6. Feedback from each round of interviews was re-integrated into the interview protocols as needed.

Data Analysis

Data was analyzed using constant comparative analysis (CCA; Corbin & Strauss, 1990, p. 6). In CCA, data collection and data analysis go hand in hand. As soon as the data collection process starts, the data analysis starts as well. This is done because the analysis "is used to direct the next interview and observations" (Corbin & Strauss, 1990, p. 6).

Due to time constraints, interviews were conducted in two-person blocks. For example, data from the first two interviews were transcribed and coded together before proceeding to the next set of interviews. This was done again after the third and fourth interviews. This adjustment to the methodology was more practical in that each subsequent block of interviews was more fruitful and targeted. By the end of the third and fourth interviews, themes were starting to emerge. This afforded follow-up with the initial participants.

To start, all interview transcripts and memos were converted to Microsoft Word documents and reformatted to 12-point Times New Roman font, lines were double-spaced, and line numbers were added to the entire transcript. Starting with the first interview transcript, responses were separated based upon the questions asked in the semistructured interviews. For example, for six questions, there would be six grouped responses. Next, each of those responses was open coded, specifically taking parts of the interviewee's direct quotes to create codes. This process was repeated with the other five interview transcripts. Next, all of the Question 1 open codes were merged into a separate Word document. This step was repeated for all of the remaining grouped

open codes (i.e., Questions 2, 3, etc.). In open coding, events/actions/interactions are compared with others for similarities and differences (Corbin & Strauss, 1990). By pooling the codes from each interview question, the researchers directly compared the feedback from each interview and advanced the data analysis process to the development of categories and subcategories. In this axial coding phase, codes were moved outside of the boundaries of the initial question categorization as needed. Final analysis resulted in the development of overarching themes. These are covered at length in the Results section.

In addition to CCA, a technique called *summative content analysis* (Hsieh & Shannon, 2005) was used to assist with analyzing the findings. This technique starts with the quantification of certain words or content with the purpose of understanding the contextual use of the words or content (Hsieh & Shannon, 2005). A slight modification was made to this technique by totaling the open codes that fit under the subcategories listed below. This allowed for the identification of the more predominant categories and themes for the purpose of reporting the results.

Ensuring Validity

Two strategies were employed to ensure worthiness of the data. *Member checking* reassures the accuracy of our participant's constructions and guards against researcher bias (Cho & Trent, 2006; Maxwell, 2013). First, a series of semistructured interviews were conducted using CCA to analyze and code the transcripts. After receiving the transcripts from each round of interviews, participants were contacted to certify that what was written was in line with what they expressed during the interviews. This informed the refinement of the next interview protocol and the study's research questions, enabling researchers to focus more intently on themes identified from previous interviews. *Triangulation* was also used in this study. Cho and Trent (2006) stated that *triangulation* verifies and checks specific facts collected across data sources. The document reviews (i.e., DE Course Portfolio ratings, OLC Scorecard data) support findings derived from the interviews in that UDL strategies are not consistently integrated into the online course development process at the university. This provided the baseline context for the need for this study.

Results and Discussion

To enhance the meaningfulness and clarity of the analysis, both CCA and *summative content analysis* were integrated in the presentation of results. From this analysis, four major categories/themes emerged from the findings: ID/faculty partnerships, barriers to adoption, accommodation versus UDL, and other issues impacting the development of online courses (see Table 2). We will discuss each briefly.

Table 2

Emerging Themes From Six Semistructured Interviews

Categories	Subcategories (# of codes in subcategory)	Sample Quotes	Total # of Codes
ID/faculty partnerships	*IDs and faculty have limited time, resources, and knowledge to properly address accessibility (13)*	ID1 – "Faculty are very, very busy, over extended and pulled in multiple directions. To ask them to build effective online courses requires a transformation of their teaching practice and it seems to ask them to also understand and implement UDL is just a bridge too far for most." ID4 – "I don't think that the expectation is that every course that comes out is fully accessible or fully compliant because we just don't have the manpower to do that or the resources in place."	39
	There are inconsistencies in the way that each ID approaches the integration of UDL strategies with their faculty (11)	D2 – "Since I have beta-tested processes and everything, I know what accessibility means and exactly what is needed and why it is needed. Other IDs don't have that experience and therefore find it difficult to understand why you ask for certain things." ID6 – "Because I've been having that, that resistance from the faculty I haven't been pushing things like make sure you use the header functions in [MS] Word. I can't even get faculty to use capitalization in [MS] Word. Headers? Forget about it."	
	IDs fear overwhelming faculty who are new to online teaching (8)	ID4 – "So we have these faculty members that are already coming in and trying to learn this whole new world of teaching and learning in vernacular in concepts and technologies and then when you compound that with legal concerns as far as copyright goes, accessibility concerns which also do have some [inaudible] occasions, departmental concerns, accreditation concerns, all of those types of things which really becomes very overwhelming."	
	IDs often use different types of communication (i.e., couch their language, present empirical data, appeal to their morality) to get faculty members to buy in on including accessibility in their course design (7)	ID6 – "Couching it [UDL and accessibility] in student success terms. Like the reason you want to not have a two-hour long thing is because people don't have the same attention span sitting in front of the computer, and they will actually listen to you more carefully if you can condense your material."	

Categories	Subcategories (# of codes in subcategory)	Sample Quotes	Total # of Codes
Barriers to adoption	*Factors impacting faculty adoption of UDL strategies:* • *Low pay (1)* • *Legal issues (2)* • *Promotion and tenure (7)* • *Ease (1)* • *Lack of any academic or department mandates (17)*	ID2 – "[Accessibility] is a paradigm shift for many people, but this is the new reality. Everybody is going online and this is where the laws are going, so you really don't have a choice anymore." ID3 – "In my opinion in some aspects it has to do with the promotion and tenure process. Faculty don't have to be so attentive to teaching per se, because when they are getting tenure, they're getting tenure based on their research and their grant. And teaching is like is part of the process, but it's not the most important part."	34
	Lack of administrative enforcement when it comes to accessibility requirements (6)	ID4 – "Faculty tend to follow the views of the administration or department." ID6 – "Most departments will follow the lead of the accrediting agencies as to what they have to include [in an online course]."	
Accommodation vs. UDL	*Faculty exercise traditional approach to supporting students with disabilities—i.e., medical model (15)*	ID5 – "Many faculty members initially think, 'well, I don't have any students who need accommodations/students with disabilities in my course…why do I need to do anything?'"	29
	Faculty members are resistant to UDL and accessibility (6)	ID4 – "I don't want to just oversimplify but the problem that we've had in fact is when we do teach about accessibility, it scares many of them away…we don't want to make anyone feel like 'Oh, this student has special needs. I don't want them in the class.'" ID5 – "Many faculty members just shut down when accessibility or UD-language [UDL] is used."	
	Many faculty members have never been asked to address UDL and accessibility (5)	ID3 – "Many faculty members have never had to consider accessibility before. They are very open to it, but it is tough for some of them. Think about it…When you learned how to use Microsoft Word, PowerPoint, or any of these other applications, which are now second nature to most people, they didn't have to really consider making their work accessible. But now they really have to think about it because they have to provide instruction that is accessible to all of the students."	
	IDs perspectives on accommodation vs. UDL (3)	ID1 – "It would be cheaper and better for all involved to only change course when a need for accessibility is registered. Easier for one or two faculty to retrofit for accommodations, vs. making the hundreds of online courses accessible each semester. Online courses change more than you think."	

Categories	Subcategories (# of codes in subcategory)	Sample Quotes	Total # of Codes
Other issues impacting development of online courses	*Many faculty members and academic units are resistant to the online course development process (8)*	ID5 – "Faculty members feel like they should not have to focus on developing a course, more so on the content that is used in the course." ID6 – "There's a shortage of qualified faculty to teach in some disciplines."	12
	Many faculty members are new to online teaching and don't understand what is involved in the process (4)	ID3 – "New online teaching faculty, ID Team staff, and DE Office staff coming to the university has resulted in greater buy-in." ID6 – "A lot of faculty do not start using technology or do not make the decision to start using technology until a couple of weeks before the start of class."	

ID/faculty partnerships. The importance of the ID/faculty relationship was very clearly defined throughout the interview process. Faculty members teaching online courses, in particular those coming to the ID team or the DE Office for support, rely heavily on IDs to provide guidance in the way of, for example, transitioning their face-to-face courses to online courses, assistance in choosing the correct educational technology to implement in their courses, and, in the context of these interviews, identifying ways to ensure that their course content is accessible to all students. Although some institutions have their IDs fully build out the courses and have the faculty members simply add content, that is not the case at this institution. Consequently, faculty members and IDs must work together to ensure the successful development of an online course.

During the interviews, it was evident that many of the IDs are very protective of this partnership. In other words, it was clear that inconsistencies exist among all of the participants when it comes to encouraging faculty members to integrate UDL strategies into their online courses. ID1 stated that members of the ID team have "varying levels of commitment to accessible design practices." Collectively, the IDs were concerned with overwhelming faculty members that are new to the online teaching experience. As ID1 added later, they have to "weigh their promotion against faculty situations where they barely have time to take on the basics of good online course design." As another ID put it, "Most faculty teaching online are novices" and are often unaware of the time commitment involved with preparing to teach online. As such, the IDs themselves struggle with getting faculty members to adhere to their own set of milestones, so some consider accessibility after the fact.

ID2 also added that many faculty members "don't know how to teach with technology." This, unfortunately, raises the bar for the successful integration of UDL strategies because it would suggest that faculty members would require a certain level of technical skill before they could or would take any initiative to ensure that their courses incorporate UDL or accessibility. ID6 summed it up best, signaling that due to resistance from the faculty, they "haven't been pushing things like make sure you use the header functions in [MS] Word. I can't even get faculty to use capitalization in [MS] Word. Headers? Forget about it."

Barriers to adoption. Interestingly, the barriers impacting the adoption of UDL strategies were numerous. The IDs, however, could only speculate as to what factors would improve adoption. Most of the comments centered on the external demands on faculty (i.e., other teaching and learning responsibilities), the lack of a top-down mandate to include UDL strategies, and faculty incentives (i.e., promotion and tenure).

For example, many of the IDs mentioned that a good number of the faculty members teaching online courses are adjunct faculty. In many instances, these individuals may work other full-time jobs and do not receive the compensation (as compared to full-time instructors or teaching faculty), course-building time, and/or ID support required to successfully develop and integrate UDL or accessibility into their online courses.

Another factor mentioned was accreditation. Interestingly, this topic elicited discussion about enforcement and who could essentially "require" faculty to integrate accessible design practices in their online courses. ID4 commented that the DE Office and the ID team have essentially no ability to enforce these practices. It was suggested that this responsibility falls to the faculty member's department or possibly upper administration (e.g., the Provost's Office). ID6 supported this assertion, stating that "most departments will follow the lead of the accrediting agencies as to what they have to include [in an online course]."

The promotion and tenure process is an additional factor that is not often considered. ID3 remarked that "faculty don't have to be so attentive to teaching per se, because they are getting tenure based on their research and their grant. And teaching is part of the process, but it's not the most important part." Other IDs also suggested that the promotion and tenure process does not place a great deal of emphasis on teaching. For that reason, faculty members, specifically full-time research faculty who also have teaching responsibilities, may wonder why they should expend a great deal of resources in an area that they are not likely to be evaluated on.

Accommodation vs. UDL. This theme addresses the perceptions IDs have about how faculty respond to what is traditionally done to support students with disabilities in higher education (accommodation) versus proactively developing instructional content that is accessible to most students, regardless of disability (UDL strategies). ID5 stated that many faculty members initially think, "Well, I don't have a student with a disability in my course…why do I need to do anything?" Likewise, ID6 commented that "faculty members will only do something if the request comes from the top-down or from the Disability Services Office." Collectively, many of the IDs agreed that faculty are generally receptive to supporting a student with a disability if a direct request is made.

As it relates to integrating UDL strategies into an online course, the IDs appear to have differing opinions. One ID commented that

> It would be cheaper and better for all involved to only change a course when a need for accessibility is registered. It is easier for one or two faculty members to retrofit for accommodations, versus making the hundreds of online courses accessible each semester. Online courses change more than you think.

On the other hand, some IDs stated that faculty members are actually quite open to considering UDL strategies; there is, however, some reluctance because they have "never been asked to do those kinds of things." ID4 affirmed this, commenting that accessibility "scares many of them away." Additional responses suggest that some of the reluctance may be more technical than personal. For example, a few of the IDs mentioned that some faculty members are limited when it comes to their understanding of how to make MS Word or PPT documents accessible. Therefore, the idea of having to learn these techniques while dealing with the other responsibilities of online course development may be a bit overwhelming.

Other issues impacting online course development. Some of the issues impacting the integration of UDL strategies in online courses have more to do with a general resistance to the

adoption of online learning than anything else. A few of the IDs suggested that many faculty members lean toward how they learned best. ID4 stated it best:

> There's an educational disposition to teach how we were taught. We were taught face-to-face, we were taught via lecture, they sat in a chair and [expletive] they listened to that guy preach for three hours a day. So, you kids are going to sit down and you're going to listen to me, because that's how I learned and that's the way it works.

An additional concern of faculty appears to be the online delivery model for course content. Several IDs mentioned that faculty members feel they "should be discipline-focused" as opposed to concerning themselves with how a course is developed. In other words, the work of creating an online course shell and/or making instructional resources accessible should not be the responsibility of the faculty member. At some institutions, this work falls to the instructional designer, instructional technologist, or, in the case of integrating UDL strategies, an accessibility professional. As that is not the case at this university, it could be that faculty members and their respective academic departments are having to shift how they approach the learning process and how they integrate technology as well. As ID6 stated, "There's a shortage of qualified faculty to teach [online] in some disciplines. We have people who have just been hired in August to teach a new online course and they've never taught online before." Compound that with the fact that "some faculty do not start using technology or do not make the decision to start using technology until a couple of weeks before the start of class." Given the preparation involved in developing an online course (Herman, 2013), and the fact that many faculty members may not be comfortable teaching with technology (Ye, 2014), this paradigm shift in the learning process could be somewhat of a shock.

There are signs, however, that attitudes about teaching online are softening at the university. ID3 noted that faculty/staff turnover in the academic departments, the DE Office, and the ID Team has started to result in greater buy-in. In addition to that, as more academic units explore opportunities to transition some of their offerings online, there has been an increased emphasis on hiring faculty/instructors that are comfortable teaching online and teaching with technology.

Limitations of This Study

Three limitations emerged in this study: time, methodology, and researcher role. First, the time allotted was probably most impactful to the findings of this study. The projected timeline for actual data collection was unrealistic (6–8 weeks). Scheduling six interviews with little time to analyze the data between each interview (i.e., using CCA) was a shortsighted approach. The nature of this grounded theory method is to "build change, through process, into the method" (Corbin & Strauss, 1990, p. 5). A great deal of time went into scheduling participants, interviewing them, accurately transcribing 60-plus-minute interviews, and then following up with the participants to ensure the accuracy of responses. A more constructive approach would have been to build as much time into the data analysis part of the process as was dedicated to the data collection process. This would have resulted in more time to process the findings. Adding to this issue was the choice to use the summative content analysis technique. Hsieh and Shannon (2005) argue that this type of technique relies on credibility and, as such, it is suggested that researchers check with their participants to ensure that the themes identified are in line with their responses. Given the time constraints detailed previously, it would have been preferable to have more time for additional follow up with the study's participants.

Finally, researcher role was a factor as well. Pseudonyms were used sparingly in the presentation of the results and discussion. This was done in an attempt to eliminate potential

indicators as much as possible. The reason for this was that the researchers are employed at this institution and work very closely with the participants involved. The small size of that office makes identification fairly easy. As such, generalizing the findings as much as possible eliminates any potentially embarrassing situations for those that were gracious enough to participate in this study.

Conclusion

Our findings revealed a number of factors causing instructional faculty to reject the integration of UDL strategies in their online courses. There was very little evidence, however, of strategies that were implemented to improve adoption. Despite this, the IDs did highlight strategies that may aid in improving faculty buy-in with respect to integrating UDL strategies into online courses developed at the university. According to several participants, these techniques have been successful in "disarming" the resistance that many faculty members have toward the inclusion of UDL strategies. They are as follows:

1. Provide a consistent approach toward the integration of UDL strategies in online courses;
2. UDL strategies employed in online courses should be more prescriptive; and,
3. the focus should be on UDL strategies, not adding accessibility.

As described previously, the ID/faculty partnership is a critical part of a successful online course at the university. As it relates to the integration of UDL strategies, it is imperative that all of the IDs have the same approach toward this aspect of the online course development process. Existing practices show clear differences in how IDs approach the integration of UDL strategies and, as such, this is evident not only in the reflections of those IDs being interviewed, but also in the document review findings.

Another strategy employed by some of the IDs to promote the integration of UDL strategies involves streamlining the number of things to be considered by faculty and embedding those techniques throughout the online course development process. ID2 described how this was handled in the past, where faculty members would be guided through the entire design and development process, and then the last thing that was covered was how to make the course content accessible. As ID2 put it, "[Faculty members] were looking at me like, you've got to be kidding! This is too much! After all that I've done, I still have to do this?" ID4 echoed the new strategy best, stating that they "try very hard to boil it down to three, four, or five core things that faculty members can do, that are super easy, that can make their course accessible to probably 90-95% of the folks out there." This sentiment was shared by other IDs commenting that faculty members are willing to adopt such practices if they are easy to do and if they are made aware of inclusive design techniques during the development process as opposed to at the end.

To encourage faculty to integrate UDL strategies in their online courses, some of the IDs cajole faculty by appealing to the trusting nature of the ID/faculty partnership, the faculty member's sense of "doing the right thing," or actually presenting empirical data from the research. Others, however, back away from using UDL-specific language altogether. For example, "couching one's language" was frequently mentioned during the interviews. ID5 stated that they often "avoid using terms like *accessibility* or *UDL*" because those terms tend to be off-putting to faculty members. ID6 suggested it was best to "couch [UDL strategies] in student success terms." Encouraging faculty members to think '*will this actually improve student learning*' or '*could this possibly impact my evaluations if I do this as a service to the students*?' For example, choosing to

use a series of short, 15-minute video clips as opposed to an entire 2-hour video or adding knowledge checks throughout a lesson as opposed to none at all are, as perceived by the IDs, more positively perceived by students. This strategy of shifting the focus to inclusive design choices as opposed to choices around disability tended to, in their collective opinions, disarm faculty members, allowing for a more fruitful and collaborative partnership.

Though not focused on UDL strategies, Herman (2013) explored faculty incentives and compensation for online course delivery and development to determine the frequency and types of incentives that were well received by faculty. He discovered that the retention of intellectual property rights, financial compensation, and teaching/technology grants and awards were three of the most commonly offered incentives among the institutions participating in the study. This suggests that, with respect to improving the adoption of UDL strategies, higher education institutions must also consider the types of incentives that would not only promote adoption by faculty but also sustain it.

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Appendix A

Inclusive Teaching Strategies Inventory: Subscales, Items, and Response Stems

Response Stem	Attitudes: *I believe it's important to...* Actions: *I do...*
Subscale	Item
Accommodations	allow students with documented disabilities to use technology (e.g., laptop, calculator, spellchecker) to complete tests even when such technologies are not permitted for use by students without disabilities
	provide copies of my lecture notes or outlines to students with documented disabilities
	provide copies of my overhead and/or PowerPoint presentations to students with documented disabilities
	allow flexible response options on exams (e.g., change from written to oral) for students with documented disabilities
	allow students with documented disabilities to digitally record (audio or visual) class sessions
	make individual accommodations for students who have disclosed their disability to me
	arrange extended time on exams for students who have documented disabilities
	extend the due dates of assignments to accommodate the needs of students with documented disabilities
Accessible Course Materials	use a course website (e.g., Blackboard or faculty web page)
	put my lecture notes online for ALL students (on Blackboard or another website)
	post electronic versions of course handouts
	allow students flexibility in submitting assignments electronically (e.g., mail attachment, digital drop box)
Course Modifications	allow a student with a documented disability to complete extra credit assignments
	reduce the overall course reading load for a student with documented disability even when I would not allow a reduced reading load for another student
	reduce the course reading load for ANY student who expresses a need
	allow ANY student to complete extra credit assignments in my course(s)
Inclusive Lecture Strategies	repeat the question back to the class before answering when a question is asked during a class session
	begin each class session with an outline/agenda of the topics that will be covered
	summarize key points throughout each class session
	connect key points with larger course objectives during class sessions

Inclusive Classroom	use technology so that my course material can be available in a variety of formats (e.g., podcast of lecture available for download, course readings available as mp3 files)
	use interactive technology to facilitate class communication and participation (e.g., Discussion Board)
	present course information in multiple formats (e.g., lecture, text, graphics, audio, video, hands-on exercises)
	create multiple opportunities for engagement
	survey my classroom in advance to anticipate any physical barriers
	include a statement in my syllabus inviting students with disabilities to discuss their needs with me
	make a verbal statement in class inviting students with disabilities to discuss their needs with me
	use a variety of instructional formats in addition to lecture, such as small groups, peer-assisted learning, and hands-on activities
	supplement class sessions and reading assignments with visual aids (e.g., photographs, videos, diagrams, interactive simulations)
Inclusive Assessment	allow students to demonstrate the knowledge and skills in ways other than traditional tests and exams (e.g., written essays, portfolios, journals)
	allow students to express comprehension in multiple ways
	be flexible with assignment deadlines in my course(s) for ANY student who expresses a need
	allow flexible response options on exams (e.g., change from written to oral) for ANY student who expresses a need
Response stem	*I am confident in...*
Disability Law & Concepts	my understanding of the Americans with Disabilities Act (1990)
	my responsibilities as an instructor to provide or facilitate disability-related accommodations
	my knowledge to make adequate accommodations for students with disabilities in my course(s)
	my understanding of section 504 of the Rehabilitation Act of 1973
	my understanding of Universal Design
	my understanding of the legal definition of disability
Response stem	*I know...*
Campus Resources	a Disability Services office exists on this campus
	what type of services are provided by the Disability Services office on this campus
	students with documented disabilities on this campus receive adequate services from the Disability Services Office
	where I can find additional support at this university when students with disabilities are having difficulties in my course

Note. Inclusive Teaching Strategies Inventory: Subscales, items, and response stems. Retrieved from http://mujoresearch.org/filedepot_download/13/10, 2012. Copyright 2012 by the University of Connecticut.

Appendix B

OLC Scorecard [Sample]

Quality Scorecard

for the Administration of Online Programs

0 = Deficient **1** = Developing **2** = Accomplished **3** = Exemplary

INSTITUTIONAL SUPPORT (27 POINTS)

		SCORE
1	The institution has a governance structure to enable clear, effective, and comprehensive decision making related to online education.	
2	The institution has policy and guidelines that confirm a student who registers in an online course or program is the same student who participates in and completes the course or program and receives academic credit. This is done by verifying the identity of a student by using methods such as (a) a secure login and passcode, (b) proctored examinations, or (c) other technologies and practices that are effective in verifying student identity.	
3	The institution has a policy for intellectual property of course materials; it specifically addresses online course materials and is publicly visible online.	
4	The institution has defined the strategic value of online learning to its enterprise and stakeholders.	
5	The organizational structure of the online program supports the institution's mission, values, and strategic plan.	
6	The online program's strategic plan is reviewed for its continuing relevance, and periodically improved and updated.	
7	The institution has a process for planning and allocating resources for the online program, including financial resources, in accordance with strategic planning.	
8	The institution demonstrates sufficient resource allocation, including financial resources, in order to effectively support the mission of online education.	
9	The institution has a governance structure to enable systematic and continuous improvement related to the administration of online education.	

TECHNOLOGY SUPPORT (21 POINTS)

		SCORE
1	A documented technology plan that includes electronic security measures (e.g., password protection, encryption, secure online or proctored exams, etc.) is in place and operational to ensure quality, in accordance with established standards and regulatory requirements.*	

Note: The order of quality indicators within each category does not signify rank of importance. They are provided in random order.

OLC ONLINE LEARNING CONSORTIUM

 1

Appendix C

6-Week Readiness Review

Main Section	Subsection	Original Checklist Items
Syllabus	Basic Information	Instructor Information (name, contact information—preferred and alternate)
		Office Hours (online and/or in-person office hours)
		Basic Course Information (course number/section, title, credit hours)
		Nature of Course Delivery (asynchronous, synchronous, required face-to-face meetings/exams)
		Blackboard Login Instructions
		E-reserve Instructions, if applicable
	About the Course	Course Description (about the course/subject, prerequisites, etc.)
		Required Textbooks
		Course Learning Objectives/Outcomes
		Gen Ed Learning Outcomes or Program Learning Outcomes, if applicable
		Technology Requirements
	Course Schedule	Weekly Course Schedule presented in a tabular format (includes units/modules with start and end dates, delivery mode if in hybrid course, readings, assignments, due dates, point values)
	Assignments and Grading	Assignment Description (due dates, requirements/expectations, criteria for grading/rubrics, points and/or percentages)
		Grading Scale
		Attendance and Participation Requirements (if applicable)
		Course Policies (late work, make-up exams, extra credit, incompletes, etc.)
	Additional Course Resources	Recommended Course Resources (readings, tutorials, external websites, exhibitions, field trips, multimedia resources, etc.), if applicable

	University Requirements	Academic Integrity
		Disability Accommodations
		Diversity, Religious Holidays, etc.
		Student Privacy
		Student Responsibilities
		Student Services (Library, Writing Center, Counseling, etc.)
Course Navigation and Presentation	Home Page	Course has a well-designed landing page (may include course visuals, announcements, to-do list or what's due)
	Announcements	Weekly Announcement has been set up, either on the Home Page or a separate page.
	Course Welcome	Includes a warm welcome message to students (audio, video, and/or text based)
		Includes clear instructions for getting started
	Syllabus	Syllabus can be navigated easily (e.g., consistent use of headers or styles in Word document, PDF file with bookmarks, etc.)
		Print version of syllabus available
	Weekly Units	Separate units for each week (or a specified time period) with specific dates
		Units having consistent structure (e.g., introduction to the topic, learning objectives, readings, mini-lectures, labs, assignments including how/where students will participate or submit, discussions, etc.).
		Links to recorded lectures/presentations are provided and working
		Link to external websites, e-books, YouTube, etc. are working
		Includes all graded and nongraded assignments for the week. Graded assignments should include associated grading criteria/rubrics
		60% of the course content is completed (100% of course to be completed one week before the semester starts)

	Online Discussions	Discussion/Blog/Journal prompts and descriptions have been created in Blackboard
	Course Tools	Available to students as applicable for the course (e.g., MyGrades, Email, Collaborate, Blog, SafeAssign, etc.)
	Student Resources	Includes links to Student Responsibilities and Services modules pages
		Includes access to Blackboard Help/FAQs
	Tests/Quizzes (if applicable)	Tests/Quizzes are developed in Blackboard with assigned points
Accessibility	Video	All videos are captioned or have transcripts
	PPT	Accessible PowerPoint slides are available for each lecture/presentation with videos
	Word	All Word documents are accessible
	PDF	All PDF documents are text based and fully accessible
	External Resources	All publisher-provided resources are accessible, or alternative equivalent resources or strategies are provided

Appendix D

Interview Guide

Research Question(s):

1. What perceptions do online course developers (i.e., DE Office, ID Team, IDs and instructional faculty within colleges and schools) at the university have about incorporating UDL strategies into the online course development process?
    a. How do online course developers at the university define "*UDL strategies*"?
    b. What factors do online course developers perceive as impacting the adoption/rejection of UDL strategies by instructional faculty teaching online courses at the university?

Potential Interview Questions:

- Tell me a little about yourself….
    - Name? How long have you worked at the university? What office do you work in? How long have you been in that office?

Exploration Question(s)...

- Describe the online course development process(es) at the university.
    - In your opinion, what are the pros and cons of the existing processes?
- What is your role in the online course development process?
    - Instructional faculty? Instructional designer? Decision-maker? Student?

Engagement Questions

- If I ask you to make your course accessible, what does that mean to you?

  *Follow up questions...*How do you define accessibility? Is your definition centered on access for a SWD or just the online student in general? Does the definition matter? UDL vs. accessible design practices?

- "*UDL strategies (i.e., captions, alt text, etc.)…*" is the lowest rated item on the DE Office's Course Portfolio ratings reviews (Fall 2014, Spring 2015). Why do you think that is?

  *Follow up questions...*Are the issues training-specific? Process-specific? Issues with the definitions? Issues with what is being asked?

- What, in your opinion, causes online course developers at the university to implement/not implement these practices?

  *Follow up questions…*What are the barriers to/drivers of adoption for instructional faculty? What are the barriers to/drivers of adoption for instructional designers? What are the barriers to/drivers of adoption for the DE Office? Academic Units? What advantages/disadvantages do you see in adopting these practices? What, in your opinion, would incentivize instructional faculty to integrate UDL principles and practices into the online course development process at the university?

- In your opinion, what perceptions do instructional faculty members have as it relates to supporting a student with a disability in an online course?

Exit Question

- Is there anything else you would like to add about faculty adoption/rejection of UDL strategies based upon UDL?

Doctoral E-mentoring: Current Practices and Effective Strategies

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Abstract
Effective mentoring has been viewed as the cornerstone of a successful doctoral experience. Traditional doctoral education uses an apprenticeship model for mentoring to help students learn what is required as an academic professional. However, online environments present unique challenges to creating and maintaining mentor-mentee relationships. Using keywords specific to e-mentoring and online graduate education, literature searches were conducted to isolate relevant research from the last decade. From this literature, it was possible to synthesize current practices in e-mentoring and identify effective strategies to use for doctoral students conducting research. Using the Yob and Crawford (2012) framework, results were organized into the following six independent categories: Competence, Availability, Induction, Challenge, Communication, and Emotional Support. Other aspects that impact the mentoring relationship are also discussed.

Keywords: E-mentoring, higher education, graduate education, literature review, faculty-student collaboration

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Doctoral E-mentoring: Current Practices and Effective Strategies

Mentoring is an important aspect of preparing graduate students to join the academic and practitioner communities. Through mentoring, students may learn to become researchers and create networks that can lead to additional opportunity (Barnes & Austin, 2009). Mentors can help students improve their knowledge base and research skills while also providing the crucial emotional support students need to persist towards the completion of their dissertation or degree. Additionally, trust is an essential part of a relationship between mentors and mentees in research and dissertation activities, as students rely on supervisors to guide them through their educational journey (Rademaker, O'Connor Duffy, Wetzler, & Zaikina-Montgomery, 2016; Roumell & Bolliger, 2017). Effective mentoring has been linked to increasing success rates (Khan & Gogos, 2013; Pinto Zipp, Cahill, & Clark, 2009), increasing retention rates (Khan & Gogos, 2013; Mason, 2012), and helping induct students into the academic community (Curtin, Malley, & Stewart, 2016; Gardner, 2008), while ineffective mentoring can have the opposite effects (Jones, 2013).

The act of mentoring can be important to student retention and graduation rates but can also help students become independent researchers in the field. When mentoring students in person, mentors may invite their mentees to collaborate on research or co-present at conferences (Heinrich, 2005; Pinherio, Melkers, & Youtie, 2014). These activities can significantly improve a student's job prospects after graduation. Ugrin, Odom, and Pearson (2008) found that students are more likely to publish research as graduates if they published with their mentors. Moreover, Heinrich (2005) and Pinherio et al. (2014) found that student-faculty collaboration can ease students' transition into the professional world of academia.

Traditionally, students connect with their mentors face-to-face and easily collaborate with them on research and other academic work (Wikeley & Muschamp, 2004). However, with the continuous growth of student enrollments in online graduate programs (National Center for Education Statistics [NCES], 2012, 2014), fostering a traditional apprenticeship relationship between faculty and students is difficult. Wikeley and Muschamp (2004) noted that a majority of students in online programs attend part-time and have jobs and families. Since online students often have other responsibilities unrelated to education, mentors may have to invest more effort when assisting students who are transitioning into the academic community (Kumar & Johnson, 2017b; Wikeley & Muschamp, 2004).

Argente-Linares, Péres-López, & Ordóñez-Solana (2017) define e-mentoring "as the process in which electronic media are used as the main channel of communication between the mentor and mentee" (p. 401). Providing online research mentoring presents some communication challenges, including technical difficulties and language barriers, as students may be in places with different communication infrastructure and local languages. Additionally, the mentoring relationship may not be a priority for online students since they are physically remote and probably disconnected from the research community. Regardless of the field of study or degree type, students rely on their mentors for guidance and it is important for mentors to deliver effective support through innovative means. Faculty members may use diverse technological tools to maintain mentee-mentor relationships and adapt strategies used when working with students in person (Doyle, Jacobs, & Ryan, 2016; Kumar & Johnson, 2017a; Nasiri & Mafakheri, 2010).

Despite new perceptions about the quality of online education (Watson, 2016), there are some concerns and differences in how face-to-face and online doctoral education are viewed by employers and scholars. For example, Adams and DeFleur (2005) determined that hiring committee chairpersons prefer potential employees from traditional programs because they perceived these candidates to have better mentoring and socialization experiences. It was also found by Roumell and Bolling (2017) that faculty members of online doctoral programs felt that virtual environments limited the ability to mentor students regarding scholarly activities such as research projects and conference presentations. In addition, the lack of contact with peers and mentors is identified as a cause of attrition for doctoral students (Terrell, Snyder, Dringus, & Maddrey, 2012). Therefore, it is important for mentors in online doctoral programs to encourage collaboration in research activities among peers and with faculty. This is especially true since online education can provide access to higher degrees for minority groups who have been historically disadvantaged (NCES, 2012, 2015) and who may be at a high risk of dropping out (Gardner, 2008; Sowell, Allum, & Okahana, 2015).

The main purpose of this paper, by means of a literature review, is to identify current practices and strategies which may help facilitate effective e-mentoring of graduate students conducting research. Based on the Yob and Crawford's (2012) conceptual framework for online mentor-mentee relationships, findings from recent studies may be categorized to understand the

present state of the mentoring process in online graduate programs. Beyond a synthesis of the literature, research and descriptions of effective initiatives in this area provide a rich picture of student and faculty perceptions of the e-mentoring relationship. Themes become apparent as to what is working and what common pitfalls exist in this process. In the discussion, strategies for effectively mentoring online students to improve success rates will be highlighted as well as recommendations for future study.

Methods

To conduct this literature review, a combination of the keywords "mentoring" "supervision" or "advising" and "graduate education" or "doctoral education" were searched in the Academic Search Premier database. In an attempt to identify appropriate articles without those terms as keywords, an additional search was conducted that allowed for those keywords to appear in any part of the article. These results were sorted by relevance, and the first 200 articles of each combination were reviewed for potential matches. Parameters were set to only show articles from peer-reviewed journals published since 2008. This date was chosen because Columbaro (2009) published a similar literature review on this topic through 2007. Abstracts of the articles were reviewed for appropriateness. Empirical articles, including case studies, which focused on the distance mentoring relationship between faculty members and graduate students in conducting research, were included. The reference lists of selected articles and non-empirical articles on the topic were also reviewed for additional resources. This process was continued until the reference lists no longer produced any further appropriate articles.

A simultaneous search of the literature was also conducted to ensure that we obtained the most current and relevant research. The key words "mentoring," "graduate," and "online" were used to search an extensive list of databases: Academic Search Premier; Applied Science & Technology; Education Research Complete; ERIC; Library, Information Science & Technology; Psychology and Behavioral Sciences Collection; and Teacher Reference Center. This additional search yielded many of the articles we discovered during our initial literature search with one crucial addition—Kumar and Coe (2017)—which, because of relevance and recentness, was added to our collection for review. In total, 19 articles were reviewed.

The articles were read with attention to findings related to the mentoring relationship. These findings were noted and then categorized into themes which were further organized into the six components of the Online Graduate Mentoring Scale in Crawford, Randolph, and Yob (2014) described below. Findings that did not fit into these components were also noted and categorized to be reported in a separated section.

Framework

Based on literature pertaining to mentoring graduate students and specifically online graduate students, Yob and Crawford (2012) created a conceptual framework for online mentor-mentee relationships. Crawford et al. (2014) validated this framework by creating a reliable Online Graduate Mentoring Scale.

Through their analyses, they reduced the seven attributes of Yob's and Crawford's (2012) original framework into six independent components: Competence, Availability, Induction, Challenge, Communication, and Emotional Support (see Table 1). The first four represent a broader domain of academic support, while the last two represent the domain of psychosocial support. The six verified attributes were used in this literature review to organize literature and highlight the strategies pertaining to online mentoring of graduate students. Although this

framework is focused on faculty actions and how they affect students, it would stand to reason that improving faculty action would positively affect student satisfaction, an idea present in many of the studies.

Table 1.
Definition of Online Mentoring Components from Crawford et al. (2014)

Component	**Defining Characteristics**
Academic Attributes	
Competence	Mentor has appropriate education and career background Mentor has previous experience as a doctoral mentor Mentor is experienced in research design and methodology
Availability	Mentor reviews students work in a timely fashion Mentor responds to mentees promptly Mentor allots an appropriate amount of time for communication with mentees
Induction	Mentor collaborates with mentees on research projects and publications Mentor helps mentees network with other professionals Mentor helps mentees identify avenues for publication and presentation Mentor assists mentees with connecting their studies with professional work
Challenge	Mentor holds mentees to a high academic standard Mentor helps mentees develop appropriate professional writing skills Mentor presents new viewpoints for the mentees to consider Mentor provides targeted feedback on submitted work
Psychosocial Support	
Communication	Mentor actively listens to mentees' concerns Mentor clearly states how mentees can improve their work Mentor holds mentees to firm but realistic deadlines Mentor is approachable
Emotional Support	Mentor addresses mentees emotional needs related to doctoral study Mentor provide advice on personal problems Mentor helps mentees build their self-esteem and confidence Mentor provides positive feedback when work is up to par

Results and Discussion

Findings in these articles, when compared to earlier literature, suggest that issues of faculty-student scholarly collaboration in distance education program have endured over time. It was alarming to see that some faculty members are not focused on helping doctoral students enter the academic community through collaborative scholarly experiences (Roumell & Bolliger, 2017). This could suggest that there has been a lack of improvement in this area since Columbaro's (2009) literature review. As early as 2004, Wikeley and Muschamp called for a new method for faculty working with distance education students. They argued that institutions should strive to provide an experience for students in online programs equal to those in traditional degree programs. They charge faculty members with becoming experts in a student's research topic, which is still a concern (Kumar & Johnson, 2017a). Moreover, Wikeley and Muschamp (2004) encouraged faculty to help induct students into the academic world, which may still be lacking since collaborative research was found to be relatively low (Erichsen, Bolliger, & Halupa, 2014). This type of research has the potential to make students aware of new research methods and help them understand the research process (Melrose, 2006). It has been found that students felt their remote setting limited their ability to learn new research methods from faculty members (Andrew, 2012).

This literature review shows that the concerns of faculty members and students have not changed. Many studies (Kumar & Coe, 2017; Rademaker et al., 2016; Terry & Ghosh, 2015) have highlighted the importance of honest and substantive feedback for the improved scholarship recommended by Wikeley and Muschamp (2004). Those authors also recommend a cohort model which seems to be frequently utilized (Crossouard, 2008; Ewing, Mathieson, Alexander, & Leafman, 2012; Kumar & Coe, 2017; Kumar & Johnson, 2017a). Additionally, Melrose (2006) argued that research collaborations between faculty members and students should be in the student's best interest since online graduate students are more likely to have other commitments. Therefore, their time is valuable and should not be exploited. This may explain why some faculty members encourage students to conduct research but do not necessarily feel the need to participate themselves (Andrew, 2012; Grady, 2016; Jacobs, Doyle, & Ryan, 2015; Rademaker et al., 2016; Roumell & Bolliger, 2017). Melrose (2006) also mentioned the importance of trust, effective communication, reasonable goal setting, and accountability for deadlines. All of these factors remain important to a successful online mentoring relationship (Doyle et al., 2016; Erichsen et al., 2014; Kumar & Coe, 2017; Rademaker et al., 2016; Roumell & Bolliger, 2017; Stadtlander & Giles, 2010).

Strategies

It has been found that multiple strategies can be utilized by faculty who are online doctoral mentors to support students' research experiences. Table 2 includes the strategies we have identified in the literature and the sources that refer to them, followed by a more detailed discussion about how mentors can utilize these strategies.

Table 2.
Summary of Strategies for Successful E-mentoring

Component	Strategy	Sources
Competence	Draw on personal experience	Erichsen et al. (2014)
	Provide resources for students to read	Andrew (2012); Kumar & Coe (2017); Kumar & Johnson (2017a); Kumar et al. (2013)
	Help students select a dissertation topic	Terry & Ghosh (2015); Welch (2017)
	Seek professional development	Kumar & Johnson (2017a); Roumell & Bolliger (2017)
Availability	Be flexible on ways to communicate (technology, times)	Andrew (2012); Crossouard (2008); de Beer & Mason (2009); Doyle et al. (2016); Erichsen et al. (2014); Kumar & Coe (2017); Kumar & Johnson (2017a); Kumar et al. (2013); Loureiro et al. (2010); Roumell & Bolliger (2017); Stadtlander & Giles (2010)
	Let students set the pace	Doyle et al. (2016); Kumar & Johnson (2017a); Roumell & Bolliger (2017)
	Meet increasingly frequently	Andrew (2012)
Induction	Demonstrate the research process through collaboration	Ewing et al. (2012); Roumell & Bolliger (2017); Stadtlander & Giles (2010)
	Encourage students to present and publish	Andrew (2012); Grady (2016); Jacobs et al. (2015); Rademaker et al. (2016); Roumell & Bolliger (2017)
	Encouraging independence	Rademaker et al. (2016); Roumell & Bolliger (2017)
	Discuss career goal	Doyle et al. (2016); Kumar & Johnson (2017a)
Challenge	Provide honest and substantive feedback	Andrews (2016); Kumar & Coe (2017); Rademaker et al. (2016); Terry & Ghosh (2015)
	Support the development of writing skills	Andrew (2012); Crossouard (2008); Jacobs et al. (2015); Kumar & Johnson (2017a); Welch (2017)
Communication	Set reasonable goals and keep students accountable	Doyle et al. (2016); Erichsen et al. (2014); Kumar & Coe (2017); Stadtlander & Giles (2010)
	Maintain open and supportive communication	Erichsen et al. (2014); Rademaker et al. (2016); Stadtlander & Giles (2010); Terry & Ghosh (2015)
Emotional Needs	Provide encouragement	Doyle et al. (2016); Erichsen et al. (2014); Kumar & Johnson (2017a); Rademaker et al. (2016); Terry & Ghosh (2015)
	Present strategies to reduce feelings of isolation	Andrew (2012); Crossouard (2008); Kumar & Coe (2017); Kumar & Johnson (2017a); Loureiro et al. (2010); Rademaker et al. (2016); Welch (2017)

Competence

Conducting research is usually a new experience for doctoral students and having a mentor who is a competent researcher can help guide students through the dissertation process. One strategy mentors, especially mentors with limited experience, can use to help their mentees is by drawing on their own doctoral and research experiences (Erichsen et al., 2014). By imparting knowledge as to what does and does not work well in a research environment, mentors can help save students from unnecessary stress and avoidable challenges. Another way mentors may help students avoid pitfalls is through providing a reading list (Andrew, 2012; Kumar & Coe, 2017; Kumar & Johnson, 2017a; Kumar, Johnson, & Hardemon, 2013). This keeps students abreast of the current literature in their field and also highlights potential research methods and topics. Students may feel lost or indecisive about a research topic when presented with a variety of potential areas of research. Unlike traditional doctoral programs, students in online programs are less likely to work directly with professors on research projects which may lead to a dissertation project. To support these students, mentors of online doctoral students may provide dissertation topic suggestions to their mentees to keep them on track (Terry & Ghosh. 2015; Welch, 2017). Finally, since online mentors have reported feeling underprepared to provide doctoral students with proper support, professional development should be sought (Kumar & Johnson, 2017a; Roumell & Bolliger, 2017). Through professional development, mentors build skills which, in turn, benefit students.

Availability

Being accessible to remote students is one of the most important ways that mentors can support their mentees. Since online students are more likely to have other commitments, it is uniquely important to build a good mentoring relationship (Wikeley & Muschamp, 2004). In order to be a solid presence in mentees' lives, mentors should establish regular and frequent meetings to stay involved (Andrew, 2012). Through these meetings, mentors can discuss other ways to be available, including flexibility and pace. Student crave mentors who are open to several forms of communication and meeting times which may suit their individual needs (Andrew, 2012; Crossouard. 2008; Doyle et al., 2016; Erichsen et al., 2014; Kumar & Coe, 2017; Kumar & Johnson, 2017a; Kumar et al., 2013; Roumell & Bolliger, 2017; Stadtlander & Giles, 2010). Mentors may consider innovative communication tools which allow for asynchronous communication for those in different time zones, such as discussion boards and learning management systems (de Beer & Mason, 2009; Loureiro, Huet, Baptista, & Casanova, 2010). An open conversation at the beginning of the mentoring relationship allows both parties to determine which forms of communication and what times are best. Additionally, this will allow both mentors and mentees to ensure that they have the technical capabilities to meet in the agreed upon modes of communication. Finally, they can also discuss pace; again, since online doctoral students have various responsibilities outside of school it is important to establish a reasonable timeline that fits each student's needs (Doyle et al., 2016; Kumar & Johnson, 2017a; Roumell & Bolliger, 2017).

Induction

In online and blended doctoral programs, faculty-student research collaborations may be lacking (Erichsen et al., 2014) despite the fact that this is one of the most beneficial experiences doctoral students can have. Through collaborative research, students learn firsthand what goes into successful research and the details of the publication process (Ewing et al., 2012; Roumell & Bolliger, 2017; Stadtlander & Giles, 2010). This sort of experiential learning helps students gain an understanding of what will be expected in the dissertation process. This practice may be impractical for certain mentoring relationships, and mentors may turn to other methods which

engender induction. Mentors can encourage students to be independent and take on research related projects of their own (Rademaker et al., 2016; Roumell & Bolliger, 2017). Students can get a sense of how to conduct research for their dissertation by conducting a smaller research project on their own or with colleagues. Mentors can provide support to students by encouraging them to consider publishing their work or presenting it at regional or national conferences which can introduce them to the research community (Andrew, 2012; Grady, 2016; Jacobs et al., 2015; Rademaker et al., 2016; Roumell & Bolliger, 2017). Mentors may suggest specific conferences or academic journals best suited for the student's work. However, not all students pursuing a doctorate intend to enter academia. Mentors should discuss students' career goals to determine which activities will help them most in the future (Doyle et al., 2016; Kumar & Johnson, 2017a).

Challenge

Research and dissertation processes require openness to criticism and a willingness to improve. Mentors can help mentees become more comfortable with this process by providing honest and substantive feedback (Andrews, 2016; Kumar & Coe, 2017; Rademaker et al., 2016; Terry & Ghosh, 2015). There may be some disagreement between faculty and student preferences when it comes to feedback. Students crave more direct edits, while faculty members prefer to provide more holistic critiques. One strategy to remedy this is peer feedback, in which students provide specific corrections while professors address overarching areas of concern (Crossouard, 2008; Loureiro et al. 2010). Peer feedback also familiarizes students with the process of submitting work to refereed journals where their work will be reviewed by peers. With feedback, students develop and improve their skills, particularly in academic writing, which is a unique skill that can be improved through practice (Andrew, 2012; Crossouard, 2008; Jacobs et al., 2015; Kumar & Johnson, 2017a; Welch, 2017). Professors and mentors should help support the development of academic writing skills throughout the doctoral program so that students are seasoned writers when they begin their dissertations.

Communication

Beyond when and how to communicate, it is important to establish quality communication in a mentoring relationship. Mentors should strive to provide open and supportive communication to their mentees (Erichsen et al., 2014; Rademaker et al., 2016; Stadtlander & Giles, 2010; Terry & Ghosh, 2015), and maintain an approachable attitude so that students feel comfortable discussing challenges or sensitive issues. To encourage this type of open relationships, mentors may actively encourage students to ask questions early in the relationship. While supportive communication is crucial to a strong mentoring relationship, it is also necessary to help students stay on track. It is important to allow students to set the pace, but students must be held accountable for achieving goals (Doyle et al., 2016; Erichsen et al., 2014; Kumar & Coe, 2017; Stadtlander & Giles, 2010). This type of accountability will help students perfect their time management skills which will ultimately help them complete their dissertation.

Emotional Needs

Completing a graduate degree, especially a doctoral degree, can be a stressful experience, and students may need emotional support from their mentors. Again, since online students are physically removed from their academic community, it is important for mentors to provide encouragement so that students feel more confident and persist (Doyle et al., 2016; Erichsen et al., 2014; Kumar & Johnson, 2017a; Rademaker et al., 2016; Terry & Ghosh, 2015). To help build confidence, mentors can allow students to take the lead in mentoring meetings. Mentors can also help struggling students by listening to what challenges they face and providing potential solutions to the problem. Distance education students commonly experience feelings of isolation which

mentors may be able to help address (Andrew, 2012; Crossouard, 2008; Kumar & Coe, 2017; Kumar & Johnson, 2017a; Loureiro et al., 2010; Rademaker et al., 2016; Welch, 2017). Mentors alleviate feelings of isolation by creating a sense of community among students, providing support, providing clear guidelines for students' work, and encouraging students to seek out support from those around them. Addressing students' emotional needs may come easily to mentors in certain fields such as education or counseling, but others may struggle with providing this kind of support. Much like competence, mentors may seek professional development to improve their skills in this area.

The Effects of Distance

Some factors that affect the mentoring process are unique to the setting itself and are not easily categorized into mentor behavior attributes. Mentors should be mindful of these limitations and adopt strategies to counteract these effects. Kumar and Johnson (2017a) found the loss of nonverbal cues normally associated with in-person communication methods to be a concern for faculty members. This finding may be related to the fact that students prefer synchronous communication methods (Kumar et al., 2013). Through synchronous communication, nonverbal cues such as tone of voice, and facial and body language may be restored. However, White and Coetzee (2014) found that supervision can be effective even through email, which is arguably the communication tool least similar to face-to-face contact.

One way to increase student satisfaction suggested by Kumar and Coe (2017) and Grady (2016) is the establishment of a residency requirement for students, even if voluntary. This might confirm a finding by Erichsen et al. (2014) that students in blended programs were more satisfied with mentoring than those in online-only programs. Since an in-person component may facilitate synchronous communication, those two ideas may validate each other. Finally, Loureiro et al. (2010) and Andrew (2012) both noted that students appreciate some degree of face-to-face interactions with their mentors. Additionally, Erichsen et al. (2014) discovered that the lack of mentoring or professional development opportunities for students as a result of being in a distance education program can lead to student dissatisfaction. For this reason, mentors may consider incorporating professional development into any residency requirement of an online doctoral program.

Making Use of the Online Graduate Mentoring Scale

Online graduate students represent a diverse group of people whose needs may vary. As such, Crawford et al.'s (2014) Online Graduate Mentoring Scale may be an effective tool to pair students with potential faculty members based on individual needs. Students hoping to pursue a career in academia may benefit from a mentor who strongly encourages collaboration and other aspects of the induction component. On the other hand, faculty members with strong emotional support and availability characteristics may be well suited for students who juggle many responsibilities and need encouragement to persist. Finally, mentors who are strong in the competence and challenge components may be especially important for students from disadvantaged backgrounds who need additional academic support. Program leaders may consider administering this scale to faculty members and an adapted version to students to help find appropriate matches. This is just one way faculty members and universities may use the Online Graduate Mentoring Scale to better serve online graduate students to help ensure success and improve completion rates.

Conclusion

Limitations and Recommendations for Future Study

The goal of this paper was to provide strategies to professors working with online students conducting research activities and therefore has some inherent limitations. Since this was not an empirical study or a meta-analysis of previous studies, additional research may be conducted to identify new or emerging e-mentoring strategies. As this review provided a comprehensive overview research in this area, gaps in the literature become apparent. Most of the researchers approached this topic from the student perspective, omitting important information about faculty opinions. This paper focused on how student and faculty opinions may inform faculty members' actions. However, research into the current actions of faculty will help to improve an understanding of this unique relationship with distance students. Moreover, since the majority of the articles were qualitative in nature, future quantitative or mixed methods studies could help contextualize some of the findings and highlight specific areas which may be improved.

The scope of this literature review may also be seen as a limitation. Search terms were chosen to optimize the breadth of results and examining reference lists helped to identify additional articles. However, other useful research may have been inadvertently missed. Additionally, the parameters that research be published in the past decade may have excluded older yet still relevant research. While Columbaro (2009) reviewed several studies in this area, that review was not as exhaustive as the present one. Furthermore, since the focus was on doctoral programs with research requirements, the strategies may not be applicable to all terminal degree programs. For instance, professional doctorates such as M.D and J.D. generally do not require a research component, and mentors in these programs may utilize decidedly different strategies when supporting students.

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Social Network Analysis and Learning Communities in Higher Education Online Learning: A Systematic Literature Review

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Abstract
This paper presents the results of a systematic literature review which sets out to explore the use of social network analysis (SNA) for investigating learning communities specifically, communities of practice (CoP) and community of inquiry (CoI) in higher education online learning (HEOL). The impetus for such a review originated from the reliance on extensive and time-consuming qualitative analysis typically required in research involving the CoP and CoI frameworks. The review consolidates and synthesizes existing research in HEOL in search of a methodological framework for structurally evaluating a CoP and/or CoI using SNA. We identified a handful of studies that integrate SNA measures and key structural components of the CoP and CoI frameworks and examined: SNA measures and corresponding theoretical components used; other analytical techniques used; limitations and; suggestions for further research. The selected studies reported disparate findings in terms of the relationship between SNA measures and the CoP and/or CoI components. The review also highlighted the need to complement SNA with a qualitative analytical technique. Therefore, whether SNA has the potential to be used as a stand-alone technique for structurally identifying communities remains to be seen. We also find a lack of consideration to attributional and performance variables in existing studies. In conclusion, we propose further research and the development of a fully integrated methodological framework which uses SNA to structurally evaluate a CoP and CoI.

Keywords: social network analysis, online learning, communities, systematic review

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Social Network Analysis and Learning Communities in Higher Education Online Learning: A Systematic Literature Review

The adoption of online learning by a progressive number of institutions (Allen, Seaman, Poulin, & Straut, 2016) has necessitated and accelerated research into pedagogical practices in the online space. Note that the we use the term "online learning" and "e-learning" to refer to purely online and blended courses and use the terms inter-changeably where necessary. A large amount of research on online learning draws from Vygotsky's (1978) social constructivist theories of learning (Smith, Hayes, & Shea, 2017), rooted in Dewey's (1938) concept of student-driven learning through engagement, active learning and collaboration, the pedagogical foundations of learning communities.

The importance of learning within communities rests on decades of research dating back to the 1920s (Smith, 2001). Following a relatively quiet period, the community learning idea re-emerged in the mid-1990s when several studies were published associating learning within a community with positive outcomes for university students (Zhao & Kuh, 2004). In 1991, drawing from Dewey and Vygotsky's social constructivist ideas, Lave and Wenger (1991) proposed the situated learning theory which describes learning as a social process situated within a community of practice (CoP). As online learning gained momentum in the early 1990s, learning in communities became the holy grail of online learning as evidenced by the view that "without the support and participation of a learning community, there is no online course" (Paloff & Pratt, 1999, p.29). Onwards, the introduction of social learning technologies and collaborative learning further propelled the community learning movement. In 2000, also rooted in social constructivist and situated learning perspectives, Garrison, Anderson and Archer (2000) developed the community of inquiry (CoI) framework as a model for online teaching, learning, and research.

Both the CoP and CoI frameworks address learning within the structure of a community grounded in a network of relationships and have been commonly applied to research on networked learning (Conole, 2011). However, a majority of the research involving the frameworks is qualitative and time-consuming, as it relies on extensive content analysis of online communication transcripts (Garrison, 2017; Wenger, McDermott, & Snyder, 2002). The development of the CoP framework was rooted in the context of professional learning whereby novices in a community learn from and gradually evolve into experts whereas the CoI framework was specifically developed as a guide for online pedagogy and research. Interactions and the nature of these interactions within networks of learners are the basic underlying concepts in both a CoP and CoI. However, since the communities are conceptually distinct, the structure of the networks underlying the communities is expected to be unique. The question then arises, can structural differences be used to evaluate and identify a CoP and CoI?

At this point, a clarification of the distinction between a network and a community and of their relationship to one another is warranted. A network is simply defined as "a set of connections among people… used for solving problems, sharing knowledge, and making more connections" (Wenger, Trayner, & De Laat, 2011, p.9). Alternatively, a community is "a group of individuals identifiable by who they are in terms of how they relate to each other, their common activities and ways of thinking, and their beliefs and values" (Biza, Jaworski, & Hemmi, 2014, p.162). A network provides the social structure underpinning a community while a community provides the social mechanism through which knowledge is generated within a network. A community is a network however, a network is not necessarily a community (Wenger, 1998). Social network analysis (SNA), a quantitative analytical technique, has commonly been used to analyse and visualize networks.

SNA is an interdisciplinary technique for investigating relationships between entities or nodes in a network. SNA distinguishes itself from other analytical approaches as it allows for visual representation of data; emphasises relations between nodes as opposed to individual attributes (Freeman, 2006); examines activities of nodes influenced by the structure of the relational networks (Wasserman & Faust, 1994); studies the flow of resources or information between nodes (Wasserman & Faust, 1994); and can be applied at the individual (micro) and/or aggregate (macro) level (Borgatti, Everett, Martin, & Johnson, 2013). The history of SNA dates to the 1930s (Moreno, 1953) however, it was not until 1954 that the term "social network analysis" was formalised into a theoretical perspective including concepts from graph theory, statistics, and probability. SNA has been used to study complex social interactions in various fields, for instance, healthcare (Chambers, Wilson, Thomson, & Harden, 2012), communication (Haythornthwaite, 1996), education (Aviv, Erlich, Ravid,

& Geva, 2003), economics (Granovetter, 2005), political science (Ward, Stovel, & Sacks, 2011), and engineering (Senghore, Campos-Nanez, Fomin, & Wasek, 2014).

SNA is being increasingly applied to the field of higher education online learning (HEOL) primarily due to the availability of big data, that is, large amounts of data stored in institutional learning management systems (LMS) (Picciano, 2012). In the context of HEOL, nodes in the network represent students, lecturers, or tutors and the connections indicate online interactions within the LMS. SNA falls under the realm of social learning analytics, a category of learning analytics defined as the "measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs" (LAK, 2011, para.6). Numerous studies have used SNA to investigate various aspects of e-learning (Cela, Sicilia, & Sanchez 2015). Cela et al. (2015) identified a total 37 studies published between 1999 to 2012 using SNA in e-learning contexts. Topics examined included interactional analysis, effectiveness of specific technologies, identification of group structures, and the roles of students, lecturers, and tutors. However, the field of learning analytics is in its infancy (Avella, Kebritchi, Nunn, & Kannai, 2016) as the potential and pedagogical value of techniques such as SNA has yet to be fully realized.

The intricate relationship between networks and communities, structural parallels between the two, and access to retrospective and real-time big data from LMSs, make SNA the ideal technique for structurally investigating a CoP and CoI in HEOL. This systematic review aims to find out if this has been done before and if so, how? The key objective of the review is to synthesize and evaluate literature that investigates a CoP and CoI using SNA and therefore establish the availability or lack of an integrated methodological framework for structural identification of learning communities. Specific research questions guiding the review are listed in the review protocol below. Prior to presenting the systematic review and our findings, in the following section we present an overview of the CoP and CoI frameworks with an emphasis on the structural components of each.

Theoretical Frameworks

Communities of Practice

Lave and Wenger (1991) introduced the theory of situated learning which postulates that learning takes place in a social context where knowledge is constructed collectively. They presented the seminal idea of legitimate peripheral participation, a process by which newcomers enter a group and eventually evolve into experts by learning and adopting practices of the group. This cyclical activity signifies learning as it leads to the development of individual and collective identities through the processes of participation and reification. Wenger (1998) discusses three aspects of practice that define a CoP: mutual engagement, joint enterprise, and shared repertoire. Mutual engagement refers to interactions between participants that lead to the construction of common meaning through negotiation. Joint enterprise refers to the process of mutual engagement and actions towards achieving a shared goal. Shared repertoire refers to the common resources and terminology used within the community. Wenger (1998) conceptualizes identity as a mode of belonging to a CoP via engagement, imagination, and alignment (p.173). Wenger, McDermott, and Snyder (2002) revise the three aspects of a CoP to domain, community, and practice where the domain is the common ground which defines the identity of the group, the community is the web of social relationships, and the practice is the shared repertoire of resources. In Wenger, White, and Smith (2009), the role of technologies in a CoP is brought into focus with the introduction of the idea of a digital habitat. The key to a sustainable thriving digital habitat is to find the right balance between three inherent polarities which drive communities to adopt technologies. These polarities include: rhythms (togetherness and separation), interactions (participation and reification), and identities (individual and group).

Even though the CoP framework has evolved over time, interactions between members of the community remain at the crux of the framework. To reiterate, reification requires participation (Wenger, 1991), negotiation of meaning comes from mutual engagement which leads to a sense of belonging (Wenger, 1998), a CoP is embedded in a network of social relationships (Wenger, McDermott, & Snyder, 2002), and finally the rhythms of togetherness and separation, and participation and reification sustain a CoP (Wenger, White, & Smith, 2009). Thus, even though a structural investigation alone of the underlying network of the community does not allow for a holistic evaluation of a CoP, we believe it can provide critical insight into community dynamics.

Communities of Inquiry

The CoI framework was developed by Garrison, Anderson, and Archer (2000) as a guide for online learning practice and research and is used to inform methodologies and approaches to online learning design and delivery. It consists of three intersecting elements namely, social presence (SP), cognitive presence (CP), and teaching presence (TP). SP is defined as "the ability of participants in a community of inquiry to project themselves socially and emotionally as 'real' people…" (Garrison, Anderson, & Archer, 2000, p.94). CP is "the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse" (Garrison, Anderson, & Archer, 2001, p.89). TP "manages the environment and focuses and facilitates learning experiences" (Garrison & Kanuka, 2004, p.98) and is not specific to the tutor hence the use of the term teaching as opposed to teacher presence (Vlachopoulos & Cowan, 2010). Each presence includes a sequence of stages, the interactions of which at different instances in the learning process propel the process forward and lead to deep learning experiences. For instance, within CP, while students can get through the first two stages (triggering event and exploration), TP is needed for the completion of the last two stages (integration and resolution), thereby suggesting a complementary relationship between TP and SP (Garrison & Arbaugh, 2007). Research also shows that there is a strong relationship between SP and learning outcomes (Hwang & Arbaugh, 2006) and that SP forms the foundation of CP (Garrison & Arbaugh, 2007) and mediates between TP and CP (Garrison, 2017). Post a series of empirical studies (Shea & Bidjerano, 2010; Shea et al., 2012; Shea et al., 2013) Shea and colleagues proposed the inclusion of a new construct, that is, learning presence (LP) in the CoI framework.

Garrison (2017) provides a comprehensive account of the research and developments in the CoI framework to date acknowledging the need for further exploration and validation. In terms of structural evaluation of a CoI, since SP is the underlying presence of CP and TP, SP is always present in a CoI. SP is represented by group cohesion or the level of interactions between participants (Garrison, 2017). Therefore, the overall density and distribution of interactions of the network underlying a CoI represents the distribution of SP and potentially CP and/or TP. Hence, we believe that the first step in an assessment of a CoI must include examination of the configuration of interactions (SP) between participants.

Methods

The Systematic Review Process

"A systematic literature review is a means of identifying, evaluating, and interpreting all available research relevant to a particular research question, or topic area, or phenomenon of interest" (Kitchenham, 2004, p.1). A systematic review is different from a traditional literature review in that it follows a scientific methodology and should be replicable (Staples & Niazi, 2007). The overall structure of this review follows Kitchenham's (2004) guidelines which have been adapted to the educational context as has been done before (Cela et al., 2015). As per the guidelines, we begin by identifying the need for the review. Then we present the review protocol which includes the scope and

research questions. Next, we describe identification of research studies including the database searches and study selection criteria and process. Finally, we synthesize and report our findings.

Identifying the Need for a Systematic Review

Prior to conducting a systematic literature review a search should be undertaken for any existing relevant reviews that might address the subject under review thereby eliminating the need for the review (Staples & Niazi, 2007). At the time the original database searches were conducted in March 2017, we found one prior systematic literature review on SNA in e-learning (Cela et al., 2015) which mentions two other previous reviews (Sie et al., 2012; Zhao, Zhu, & Wu, 2011) on SNA. A re-run of the database searches in May 2018 identified another literature review (Dado & Bodemer, 2017) that examines trends in the application of SNA for investigating learner interactions in computer-supported collaborative learning environments. None of the reviews make any mention of the CoP and/or CoI frameworks. Literature reviews on CoP (Smith et al., 2017) and CoI (Rourke & Kanuka, 2009) also make no mention of the studies that use SNA as a key analytical methodology.

Review Protocol

Defining the focus of the review. The most critical component of a systematic literature review is the set of research questions driving the review, as they define the boundaries of the review and impact the inclusion criteria for studies (Staples & Niazi, 2007). This review was conducted to address the following research questions:

RQ1: Which research studies in HEOL employ SNA to investigate a CoP and CoI?

RQ2: Which SNA constructs have been used to explore components of a CoP and CoI?

RQ3: What other complementary analytical techniques have been used with SNA?

RQ4: How effective is SNA for investigating and identifying a CoP and CoI?

RQ5: What limitations have been identified and what suggestions for further research have been made in existing studies?

Searching literature databases. Database searches were conducted in March 2017 and again in May 2018 in EBSCOhost, SCOPUS, and ERIC. SCOPUS is the largest database of peer-reviewed research literature, ERIC is one of the most used databases for education-related literature and, the EBSCOhost platform includes numerous databases across multiple disciplines. The search criteria consisted of combinations of different terms to ensure maximum coverage of variations in usage (see Table 1). The search was conducted on the full text of documents and was limited to peer-reviewed journal articles in English. No lower limit on the year of publication was specified.

Table 1.
Database Search Terms

Term	Variations
Online Learning	e-learning OR elearning OR online learning OR blended learning
Community	community OR communities
Community of Practice	community of practice OR communities of practice
Community of Inquiry	community of inquiry OR communities of inquiry
Higher Education	undergraduate OR graduate OR postgraduate OR bachelors OR masters OR higher education
Social Network Analysis	social network analysis

Study selection. The search process began with specifying broad criteria which were progressively narrowed down to include studies in HEOL that use SNA as an analytical tool and use CoP and/or CoI as key frameworks for analysis. Table 2 below shows the different stages of the study selection process. The numbers shown in the table represent studies in HEOL as this was applied as an umbrella criterion for the searches.

Table 2.
Study Selection Process

	Search Parameters			
	Stage 1	**Stage 2**	**Stage 3**	
Databases	**Community**	**Community & SNA**	**CoP & SNA**	**CoI & SNA**
SCOPUS	12,712	441	126	83
EBSCO Host	2,247	11	2	1
ERIC ProQuest	2,085	109	63	173
Total	**17,044**	**561**	**191**	**102**
	Stage 4	**Bogus results & Duplicates**	12	5
	Stage 5	**Remaining Studies**	180	98
		Abstracts searched for SNA	37	29

Stage 1 of the search returned a total of 17,044 studies in HEOL mentioning the term "community." In Stage 2, the search criteria were further narrowed to include "social network analysis,"' returning a total of 561 studies. In Stage 3, the criteria were again narrowed, and two separate searches were conducted to include "community of practice" and "community of inquiry" returning a total of 191 studies mentioning CoP and SNA and 102 studies mentioning CoI and SNA. In Stage 4, bogus results and duplicates were removed. In Stage 5, with the assumption that studies using SNA as an analytical methodology would mention the term "network analysis"' in their abstracts, the abstracts of the remaining 180 CoP studies and 98 CoI studies were searched for the term. Finally, 37 CoP studies and 29 CoI studies were selected for a detailed review. Upon detailed review, of the 37 studies using SNA and the CoP framework, 19 were either not using SNA or were not in HEOL, 6 only mentioned the CoP framework, 1 was a literature review, and 10 were duplicates of the CoI studies. Therefore, finally only 1 study met the inclusion criteria. Of the 29 studies using SNA and the CoI framework, 7 were not in HEOL, 12 only mentioned the CoI framework and, 1 was a literature review. Therefore, finally 9 studies met the inclusion criteria. There are many examples of the application of SNA on the use of social media in online learning (e.g. Veletsianos & Kimmons, 2016). All such studies have been excluded from the review as our focus is on formal and structured learning within a LMS.

Other searches. To extend the scope of the search, references of the selected studies were reviewed. Additionally, the citation index of the studies was obtained using Google Scholar

(https://scholar.google.com.au). Upon review, none of the studies citing the selected studies met the inclusion criteria. Furthermore, selected authors were contacted for further information. No additional studies were identified.

Results

RQ1: Which research studies in HEOL employ SNA to investigate a CoP and CoI?

Table 3 lists the studies included in this systematic review. Each study has been assigned a number for ease of reference. A detailed summary of the studies is provided in Appendix A.

Table 3.
SNA and CoP/CoI Studies

No.	Author(s)	Year	Framework	Title
S1	Shea & Bidjerano	2010	CoI	A re-examination of the community of inquiry framework: Social network and content analysis
S2	Annese & Traetta	2012	CoP	Distributed participation in blended learning communities: Actors, contexts, and groups
S3	Jimoyiannis, Tsiotakis, & Roussinos	2012	CoI	Blogs in higher education: Analysing students' participation and presence in a community of blogging
S4	Shea et al.	2013	CoI	Online learner self-regulation: Learning presence viewed through quantitative content- and social network analysis
S5	Shea et al.	2014	CoI	Re-conceptualizing the community of inquiry framework: An exploratory analysis
S6	Tirado, Hernando, & Aguaded	2015	CoI	The effect of centralization and cohesion on the social construction of knowledge in discussion forums
S7	Wicks et al.	2015	CoI	An evaluation of low versus high collaboration in online learning
S8	Jimoyiannis & Tsiotakis	2017	CoI	Beyond students' perceptions: Investigating learning presence in an educational blogging community
S9	Jo, Park, & Lee	2017	CoI	Three interaction patterns on asynchronous online discussion behaviours: A methodological comparison
S10	Satar & Akcan	2018	CoI	Pre-service EFL teachers' online participation, interaction, and social presence

Of the 10 studies, all except one (S2) were conducted in the context of the online space of online or blended courses. S2 explored online and off-line interactions. The studies investigated interactions within asynchronous discussion forums (S1, S2, S4, S5, S6, S9, S10), blogs (S3, S7, S8) and journal entries (S4). All investigations were conducted on interactions between students and/or tutors. The key objective of each study guided the scope and nature of analysis undertaken. S1 conducted an examination of the relationships between CP, SP and TP; S2 investigated the impact of

learning design on participation in a CoP; S3 analyzed student participation in terms of CP, SP, and TP; S4 conducted an exploration of LP and network positions and the effects of assigning instructional roles to students on LP and network positions; S5 investigated relationships between LP and CP, SP and TP, and explored the impact of assigning instructional roles to students; S6 developed a model to verify the influence of cohesion and centralization on the quality of the learning process; S7 investigated the impact of student collaboration on student performance; S8 developed an integrated framework for designing and investigating engagement patterns and LP; S9 conducted a comparison of three analytical methodologies to assess the quality of online discussions and their relationship with academic performance and; S10 examined the relationship between online participation, interaction, and SP levels.

RQ2: Which SNA constructs have been used to explore components of a CoP and CoI?

Network properties. A network is made of nodes and interconnections between them (Wasserman & Faust, 1994). A one-mode network comprises of a single set of nodes connected by single or multiple types of relationships. A two-mode network consists of two sets of nodes, that is, actors and events (Scott, 2000). All included studies were on one-mode networks. Nodes in a network can represent human and/or non-human entities. All included studies comprised of human entities where the nodes represented students only (S2, S3, S4, S5, S6, S7, S8, S9) or students and tutor (S1, S10). The number of nodes determine the size and boundaries of a network (Wasserman & Faust, 1994). Of the 10 studies, three (S2, S4, S5) had less than 25 nodes, five studies (S3, S6, S7, S9, S10) had between 35 to 75 nodes and two studies (S1, S9) did not specify the number of nodes.

A tie or link between nodes in a network represents the relationship between the nodes which can be of any type, for instance, co-workers, friends, professionals, etc. (Wasserman & Faust, 1994). The direction of a tie identifies the initiator of the relationship, a bi-directional tie represents a reciprocal relationship while the weight of a tie signifies the strength of the relationship (Borgatti et al., 2013). The ties in the selected studies represented interactions between students and/or tutors or lecturers. Of the 10 studies, eight used directed and un-weighted networks. The networks in S6 and S10 were directed and weighted.

SNA, CoP and CoI constructs. The majority of the studies used similar SNA measures. Here we discuss the key SNA measures used along with corresponding structural components of a CoP and CoI. For a detailed analysis, see Appendix B.

A network can be measured in terms of its shape and cohesion. Determinants of cohesion include a networks' centralization, density, and number and size of cliques. Centralization, a shape measure, is defined as the degree to which a single node dominates a network (Borgatti et al., 2013). In S6, the network's centralization is used as a measure of collective communication and overall cohesion of a CoI, while S10 interprets centralization in terms of the existence of SP in the CoI. Density, which is calculated by dividing the total number of ties in a network by the total number of possible ties, is a proportion, therefore, it allows for comparison of networks regardless of size assuming the size differential is not huge (Borgatti et al., 2013). In S1 and S10, density is taken as an indicator of SP; S6 and S9 use density to assess rate of participation in a CoI, and S2 uses the measure of density to assess the participation trajectory of the CoP.

In a large complex network, often there are nodes within sub-groups that have a higher density of connections that warrant detailed analysis as independent entities. These sub-groups are called cliques. A clique is a group of nodes in which every node is adjacent to every other node in the group, that is, it is a maximally connected sub-network with a density of 1. S3 and S8 use clique analysis to investigate the overall architecture of a CoI taking the number and composition of cliques as determinants of the process of knowledge creation and extent of communication. S2 examines cliques

to assess the development of the CoP and individual learning trajectories. Cliques can overlap which means a node can belong to multiple cliques and there can be nodes that do not belong to any clique (Borgatti et al., 2013). Nodes belonging to multiple cliques are considered as bridges or brokers. S2 uses clique analysis to identify brokers and assess local and global interactions within and across sub-groups.

The centrality of a node refers to the structural position of the node in a network. The simplest measure of centrality is degree centrality which is the number of connections of a node. In a directed network, the in-degree centrality measures the incoming edges and the out-degree centrality represents outgoing edges. The centrality of a node has also been linked to power, influence, prestige, and performance (Borgatti et al., 2013). In-degree centrality and out-degree centrality were used as indicators of influence and prestige (S1, S5) linked to CP, TP and CP and LP (S4, S5, S7) in a CoI. Overall degree centrality was used to signify status and roles in a CoP (S2) and power in terms of spreading information and influencing others in a CoI (S3, S8).

Summarizing, we have found that at the whole network level, measures of cohesion have dominated the structural evaluation of a CoP and CoI and at the individual node level, measures of degree centrality have been prominent.

RQ3: What other complementary analytical techniques have been used with SNA?

Other complementary techniques used in the studies include content analysis, critical discourse analysis and statistical analysis like correlations, multiple regressions, non-parametric tests of significance and structured equation modeling. Content analysis is a qualitative and quantitative analytical technique used to conduct an in-depth analysis of discussion transcripts enabling standardized interpretations and classifications of text according to a specific coding scheme (de Wever, Schellens, Valcke, & Van Keer, 2006). Critical discourse analysis is a special technique grounded in critical linguistics and critical semiotics, used to examine written text and the language, discourse, or communication within the text (Van Dijk, 1995). A list of complementary techniques used by each study are listed in Appendix B. Clearly, to date, SNA has not been used as a stand-alone technique in the investigation of a CoP or CoI.

RQ4: How effective is SNA for investigating and identifying a CoP and CoI?

The overall objective of this systematic review which was to tease out how structural components of a CoP and CoI have been researched using SNA. To assess the effectiveness of SNA for investigating a CoP and CoI, a synthesis of findings from the studies follows.

Community of inquiry. Four of the CoI studies examined SNA indicators of CP, TP and SP and the relationship between the presences. In an exploration of the relationship between CP, SP and TP in an online discussion forum, S1 found in-degree to be a poor indicator of CP, especially when applied to the tutor. In other words, incoming comments to the tutor were not of educational value. However, the out-degree centrality of the tutor was associated with initiation of productive exchange, a category of CP. The study reported density to be a good indicator of SP. In line with findings of S1, S6 found SP to be more prominent as compared to CP in an online discussion forum. However, structured equation modeling showed a positive relationship between network centralization and SP as well as CP. Similarly, in an online blogging community, S3 found a positive association between CP, knowledge construction, and active participation in the community. In this instance, CP was found to be higher than TP and SP. S10 reported inconclusive findings on the relationship between centrality, density, and SP in an online discussion forum. In a methodological comparison, S9 found combined CP and in-degree centrality to be a significant predictor of academic performance, thereby corroborating the positive relationship between the two.

Four of the CoI studies explored the construct of LP and its relationship with degree centrality and CP, SP, and TP. For instance, in a discussion forum, S4 found that key student facilitators with high degree centralities exhibited higher levels of LP. In general, findings suggested that students with high LP also had high in-degree implying that they were considered valuable sources of information by other students. In a follow-up study, which investigated the relationships between LP and CP and SP and TP, S5 found no significant correlation between TP and degree centrality however, LP and CP and, LP and degree centrality were positively associated with degree centrality. Similarly, S8 applied hierarchical clustering to group similar students and found an association between degree centrality and LP in an online blogging community. Likewise, investigating the impact of collaboration on learning, S7 reported a positive correlation between LP and out-degree and a negative correlation between LP and in-degree. Findings of these studies point to a positive relationship between LP and degree centrality however, at this point there is not enough published research to validate the construct of LP and its relationship with the other three presences.

Considering that the 9 CoI studies report disparate findings in terms of the relationship between degree centralities and CP, SP and TP, SNA's capacity to identify the type of presence based on overall and in and out-degree centralities of participants of a CoI cannot be established. However, if SP is the underlying presence in a CoI which gradually evolves into CP and TP over time (Garrison, 2017), it is reasonable to assume that the density of network and overall degree centrality of a node is indicative at least of SP upon which TP and CP develop.

Communities of practice. S2 presents findings of action research on the impact of learning design on student participation and collaboration in a blended course. The researchers base their analysis on a comparison of individual and group participation trajectories within sub-group (local) and whole network (global) interactions. They use measures of density and cohesion as indicators of the global trajectory of the community. For individual trajectories, degree centralities and the number and structure of cliques are analyzed where overlapping cliques represent overlapping CoP. At the same time, the status and role of brokers and bridges are considered within the local and global community. In their discussion of the findings, the researchers place emphasis on the rhythm between local and global interactions and the effect of this rhythm on the sense of belonging to individual sub-groups and the whole community. The researchers attribute the online togetherness to the mediating role played by the technological artefact, the LMS, which brings students together. The researchers conclude that the design of the course led to the development of a CoP without spatial or temporal boundaries in which the rhythms of participation amplify the shared repertoire and sustain the mutual engagement and joint enterprise as indicated by an increase in global cohesion over time. S2 provides a very good, albeit only one, example of how SNA can be effectively used to investigate structural components of a CoP in HEOL. This example, coupled with the fact that SNA has been used considerably in conjunction with the CoP framework in other contexts (e.g. Grandjean, 2016; Lee, Kim, & Su, 2014) leads us to conclude that SNA can be used effectively in a structural evaluation of a CoP.

RQ5: What limitations have been identified and what suggestions for further research have been made in existing studies?

Even though the sample size of majority of the studies is small, only two studies (S5, S6) explicitly state it as a limitation. More specifically, several studies (S1, S2, S3, S6, S8, S10) point out the need to investigate the role of tutors/facilitators and its impact on participation dynamics. Another important suggestion for further research (S3, S8) is the need to explore the influence of student characteristics like cognitive needs, goals, learning habits, and motivation on participation. Other suggestions include focusing on a specific part of the learning process, for instance, the role of a

technological artefact (S2), extending analysis to off-line interactions for blended units (S8, S10), identification of variables in discussion transcripts that are indicative of quality of learning (S9), validation of the coding scheme for content analysis (S1, S6), application of other SNA measures besides centrality and examination of multiple overlapping social networks (S7), exploration of the relationship between learning outcomes and centralities (S7) and, exploration of characteristics of lurkers or observers (S8). In general, findings of the selected studies are not generalizable as they are limited to the participants and the context they were conducted in, therefore, to validate the findings, the studies need to be replicated in other contexts.

Discussion

There is plenty of stand-alone research using SNA, the CoP and the CoI frameworks in HEOL. However, as we have found, there are a very limited number of studies that bring together constructs from SNA and these community-based frameworks. Therefore, this review provides a valuable synthesis of research that integrates SNA and the CoP and CoI frameworks in HEOL. There are three major themes that emerge from this systematic literature review.

Firstly, the review has revealed that for studies using SNA with the CoI framework, findings are mixed in terms of the effectiveness of SNA to identify the different presences in a CoI. For instance, S1 reported no association between degree centrality and CP in a discussion forum whereas, S3 found a positive relation between the two constructs in a blogging community. Therefore, overall and in and out-degree centralities cannot reliably be correlated with a particular presence in a CoI, thereby necessitating complementing SNA with a qualitative analytical technique such as content analysis as was done in the studies included in the review. Similarly, the one study (S2) integrating SNA with the CoP framework provides one example of the effectiveness of SNA in identifying the structural dynamics of the community and individuals within, however, a complete exploration of a CoP calls for combining SNA with qualitative analysis. Furthermore, the studies support the use of other statistical techniques like correlation and regression analysis, along with SNA and qualitative analysis, to determine significance of relationships between SNA constructs and components of a CoI and CoP. Clearly, at this point, as a stand-alone technique, SNA has not been shown to have the capacity to identify a CoI or CoP structurally. However, by isolating key sub-groups and participants, SNA does prove to be an effective filter for big data thereby reducing complexity of the data.

Secondly, we would like to bring to the forefront concerns about the untapped potential of SNA. None of the included studies consider how SNA can be used to identify a CoI or a CoP based on the overall structural characteristics of the underlying network. For instance, can we say that a highly centralized network represents a CoP? Or is it a CoI? Considering that the frameworks are conceptually distinct, should we expect different network structures underlying each? If so, with regard to higher education, if we assume achievement in a course signifies learning, is there a direct correlation between learning within a CoP or CoI? Is there a qualitative difference in the way students learn within a CoP and CoI? Are there other SNA measures that might be more appropriate for evaluating a CoI and CoP? Considering network visualizations, can a CoP and CoI be identified visually?

Thirdly, we would like to highlight the lack of consideration to students' attributes and performance in the selected studies. None of the studies consider student attributes and only two (S7, S10) examine how interactions translate into performance. In the context of higher education, if we accept that final grade is an indication of learning, what can this tell us about students' learning in a CoP or CoI? Years of research shows that communities are effective in fostering deep learning, but how can we explain a scenario in which if a student who appears as a well-connected node in the

community does not perform as well as another student who is on the periphery? One explanation could be provided by examining student attributes like self-efficacy and goal orientation and their influence on participation and performance. Therefore, a holistic investigation of learning within communities warrants inclusion of attributional variables.

Conclusion

In view of the significance of community-based learning and its relevance to HEOL, the motivation for conducting this review came from the heavy reliance on qualitative analysis in research involving the CoP and CoI frameworks, which are increasingly being applied by researchers and practitioners of HEOL. The key objective of the review was to assess the efficacy of a quantitative technique, SNA, for evaluating and identifying a CoP and CoI based on structural components of each. The review reveals the dearth of research studies in HEOL that use SNA with the CoP and CoI frameworks thereby pointing to the inadequacy of research in the area. Our findings show that the small number and disparate results of the selected studies do not validate a correspondence between a specific SNA measure and a CoP or CoI structural component. However, repeated use of some SNA measures justifies further validation and therefore inclusion of these measures in future studies involving the CoP and CoI frameworks. Also, we believe that the potential of SNA to structurally evaluate and identify a CoP and CoI remains untapped as a limited number of SNA measures have been used and the power of network visualizations has not been considered.

Considering the lack of literature found, the review highlights the need for further studies in HEOL that integrate SNA with the CoP and CoI frameworks and address aforementioned gaps in existing research. In terms of limitations, in line with our focus on pedagogical practices within a LMS, this review was limited to studies involving interactions within the LMS in the context of HEOL. Furthermore, the review was restricted to peer-reviewed journal articles in English therefore, it does not consider investigations that might have been published in conference papers and book chapters, etc. or in other languages.

In conclusion, we recommend the development of a fully integrated methodological framework including SNA measures and structural components of the CoP and CoI frameworks. Not only would such a framework reduce reliance on extensive qualitative analysis, it would allow for an examination of the relationships between student attributes, participation, and learning. As such, the framework would present useful practical implications for practitioners, researchers and even students. Furthermore, by providing theoretical foundations to SNA measures, the framework would also address the concerns about the lack of theoretical grounding in research involving SNA (De Laat, 2014: Hamilton & Feenberg, 2005).

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