10. Using the Community of Inquiry Theory to Assess Online Programs and Help Students to Analyze Their Learning

Julie Watts
University of Wisconsin-Stout

Abstract: Some program assessment strategies may fall short for assessing online technical and professional communication (TPC) programs. The community of inquiry (COI) theory, when paired with an outcomes approach, provides a well-rounded assessment of both the online learning environment and what outcomes students achieve. COI theory also can impact students by framing a course-embedded, learning-focused online student orientation (OSO) meant to give students a vocabulary with which to analyze the online learning environment and to recognize what behaviors and skills they, their peers, and instructors should exhibit to improve learning. COI is a theoretical framework designed for online learning, showing that instructors and students need to be "present" in different ways to cultivate a learning community conducive to deep learning. COI helps participants to determine what student and instructor behaviors and activities best contribute to student success online and why. Three presences—cognitive, social, and teaching—are used as lenses with which to identify and assess these behaviors and activities. This chapter introduces the content and delivery methods used to develop a COI-framed OSO for online TPC master's students, the methods used to pair COI with an outcomes-based program assessment, and strategies for communicating results and recommendations to program stakeholders.

Keywords: program assessment, outcomes, community of inquiry, online student orientation

Key Takeaways:

- The community of inquiry (COI) theory, a framework designed for online learning, demonstrates that instructors and students need to be "present" in different ways to cultivate a learning community conducive to deep learning.
- COI, when paired with an outcomes approach, provides a well-rounded assessment of both the online learning environment and what outcomes students achieve.
- COI is useful for helping online program students identify and reflect on the behaviors and skills they need to succeed in an online graduate program.

DOI: https://doi.org/10.37514/TPC-B.2020.1121.2.10

Administrators of academic programs in technical and professional communication (TPC) select from a variety of theories to situate program assessment, including social construction (Coppola, 1999), "layered literacies" (Carpenter, 2011; Cargile Cook, 2002), or theories positioning the "thinking, doing, teaching" in which TPC professionals engage (Johnson-Eilola & Selber, 2001). Program administrators often use assessment strategies that are outcomes based (Coppola & Elliot, 2007; Say, 2015; Williams, 2010), helping to show the "evidence of impact" (Allen, 2004, p. 94) that curricula have on learning (Coppola et al., 2016).

While TPC program assessment practices have developed throughout the last decades (see special issue on programmatic research in *Programmatic Perspectives*, 2016), many fall short for assessing online TPC programs. Because of lingering doubts concerning the efficacy and rigor of online learning (Allen et al., 2016), directors of online TPC programs need to coordinate assessment that evaluates outcomes and the learning environment.

As director for an online TPC program for over a decade, I have found that only assessing student learning outcomes for program assessment is not sufficient to properly communicate the value of my program to its stakeholders: I also have to assess the online learning environment (Watts, 2017). Why? Because online learning (despite its growth) is still regarded as less valuable than face-to-face learning. Research indicates that employers (Fogle & Elliott, 2013; Linardopoulos, 2012) and students (Chant, 2013; Parker et al., 2011) hold reservations about the value of online degrees and online learning in general. Thus, if program directors can provide evidence of how students and instructors are participating in a robust community of learners, they can better communicate the value of their online program.

Most important, though, this focus on the learning environment not only assists with assessment, it also helps students in online programs to take control of their learning. Faculty and program directors understand all too well the digital native myth: students—even those who have experience playing and working online—often are not prepared for online learning (Brumberger, 2011; Kennedy et al., 2008). Students need help "learning how to learn" online, and the theoretical tool I discuss below can give students a vocabulary with which to analyze their online learning experiences and to reflect on and improve them (Watts, 2019).

The community of inquiry (COI) theory—developed to characterize how students and instructors ideally need to be present as participants in online learning (Garrison et al., 2000)—can serve both a program assessment and a student reflection purpose. When paired with an outcomes approach, COI provides a comprehensive assessment of the online environment and its impact on student learning. Additionally, COI gives students a language to recognize what behaviors and skills they, their peers, and instructors should exhibit to promote "deep learning" and improve their learning experiences (Phillips & Graeff, 2014).

Community of Inquiry Theory

COI is a theory analyzing the online learning environment (Garrison et al., 2000), showing how instructors and students need to be "present" to cultivate a learning community conducive to "deep learning" (Rourke & Kanuka, 2009, p. 23). With deep learning as the desired outcome, the bar is set high for student performance. To achieve deep learning, students must move beyond surface learning and instead "utilize critical thinking skills by looking for meaning in the course content and trying to relate it to personal experiences and ideas" (Phillips & Graeff, 2014, p. 242).

COI examines the online learning environment as a key facet of program assessment, addressing stakeholder concerns that often question online programs' rigor: Do students fully contribute to an engaging learning experience (Lear et al., 2009)? Do instructors foster learning experiences meaningfully (Cameron et al., 2009; Jones, 2013)? Do students feel connected with a community or isolated without peer and instructor support (Shackelford & Maxwell, 2012)? Because COI examines the learning environment and the presence of students and instructors in it, questions such as these can be investigated and addressed. Specifically, COI helps participants determine what student and instructor behaviors and activities contribute to student success (deep learning) in an online course and why (Shearer et al., 2015). Three presences—cognitive, social, and teaching—are used as lenses with which to identify and assess these behaviors and activities.

Cognitive presence is characterized by students' sustained interaction with and reflection about course material: students "question their existing assumptions" and need to "construct" and apply "new knowledge" (Stewart, 2017, p. 71). Students create meaning and reflect on their learning to confirm their understanding of complex processes (Garrison & Cleveland-Innes, 2005). Instructors assist by scaffolding the "process of critical inquiry": setting up a complex problem and helping students to research, apply, and test their recommendations (p. 134). The goal is for students to acquire a set of behaviors and actions constituting cognitive presence, with the other presences supporting this.

Social presence recognizes that interacting with peers and the instructor fosters an individual's cognitive presence and cultivates deep learning (Oztok & Brett, 2011; Wang & Wang, 2012). A critique of online learning environments is that they lack the traditional structures of support and community often taken for granted in face-to-face classes (Bejerano, 2008). Thus, a common misconception about online learning is that those who succeed do so without support (Wooten & Hancock, 2009). COI does not support the myth of the isolated learner. Instead, instructors need to cultivate social presence by creating a trusting learning environment and facilitating student collaboration around a common set of intellectual tasks (Swan et al., 2009).

Teaching presence is achieved through thoughtfully designing the course, facilitating discourse among participants, providing direct instruction, and offering

timely feedback about student work. To be present, instructors should not be omnipresent: "Too much instructor presence can actually impede students from taking more responsibility for their learning, prevent critical thinking, and downplay the value of student-to-student interaction" (Peery & Veneruso, 2011). Teaching presence changes over time, with different strategies (e.g., direct instruction, facilitating discourse) more frequent at different times (Akyol & Garrison, 2008). Specific practices such as audiovisual commentary on student work can play a role in establishing teaching presence (Grigoryan, 2017). A positive correlation exists between teaching presence and student motivation (Baker, 2010) and between effective teaching presence and healthy social presence (Shea et al., 2006).

Using COI to Help Students Reflect on Their Online Learning

Before I examine how COI complements an outcomes-based program assessment, I first consider the uses of COI as a reflective tool for students to use to improve their own online learning experiences. To introduce students to this use of COI, I designed a course-embedded online student orientation (OSO) using COI as its theoretical framework to help students articulate and nurture the behaviors and skills that they and others (peers, instructors) need to enact that most help them achieve deep learning (Watts, 2019). Below, I discuss the rationale for creating the OSO, the OSO's content and delivery strategy, and some benefits students achieved.

The COI-framed OSO that I devised gives students a vocabulary with which to identify those factors cultivating teaching and social presence and how these impact their cognitive presence. Importantly, the OSO involves all participants in cultivating cognitive presence and deep learning. Working adult students (the majority of whom enroll in my program) are a particularly vulnerable population, experiencing family issues, gaps in previous education experiences (Brewer & Yucedag-Ozcan, 2012-2013), and employment responsibilities (Ashby, 2004), often leading to "limited persistence" in which their enrollment demonstrates frequent starts and stops that delay degree benefits and increase costs (Hutchens, 2014). Unfortunately, while OSOs often are available to online students, OSOs for this group tend to focus on orienting students to technologies used in the learning environment (Taylor et al., 2015) or introducing them to university resources (Jones, 2013): learning-focused OSOs are less common (Wozniak et al., 2012).

While OSOs are typically perceived as a precursor to coursework, studies suggest that course-embedded OSOs are preferable and help to increase completion rates (Taylor et al., 2015; Wozniak et al., 2012). I embed my OSO into the first and last week of one of my program's 15-week courses, a class introducing students to TPC theory and research and one students are advised to take early in the master's program.

The week 1 OSO consists of several activities:

- Students view a 10-minute video of me explaining COI and read an accompanying blog article, "Five-Step Strategy for Student Success with Online Learning" (Morrison, 2015).
- Students participate in a discussion board to deliberate what strategies or behaviors could be used to inculcate cognitive, social, or teaching presence in the seminar.
- Students individually write a two-page response paper about a study (Lambert & Fisher, 2013) that examines COI in an online graduate seminar.

At the end of the semester, students respond individually to a final exam prompt asking them to analyze the ways they have "learned how to learn online" during their time in the seminar, using the OSO COI concepts. Students are given the prompt during the last day of classes, and they have the remainder of the one-week evaluation period to submit their responses.

During week 1 of the OSO, I introduce students to the concepts of COI; I have facilitated this OSO several times, and generally, students are not familiar with COI prior to this. Students examine the video of me explaining COI concepts; the video is accompanied by a slideshow, listing cogent COI definitions. While the Morrison (2015) blog article does not invoke COI, I ask students to compare and contrast ideas between the article and the video. On a discussion board, I ask students to respond to these questions: (a) How do the concepts discussed in the COI video align with the five-step strategy proposed in the blog post? (b) Name and define one "strategy" (it doesn't necessarily need to be one mentioned in the blog post) that could be used to inculcate cognitive, social, or instructor presence in this class. I encourage students to read the discussion board and reply to at least one student's post. Doing so affords students the opportunity to see how others understand and apply COI. My presence on this board is limited to identifying errors or misjudgments in the definition or application of COI. I provide students with participation points for this activity. Students also read the Lambert and Fisher (2013) article, which uses COI as the framework for a study examining an online graduate program. In a two-page paper, students individually identify the main ideas of the study and discuss how the findings relate to them. I provide feedback and a grade on this activity.

The final exam is a useful way for students to assess and reflect on the semester and the progress they and their peers and instructor have made in cultivating a COI. For the exam, students individually revisit the three presences and analyze how they "learned how to learn" online in this course, pointing to particular instances concerning themselves, their peers, and/or the instructor while identifying specific learning activities. Students receive feedback and a grade for completing the exam.

Results of the OSO study showed that the majority of students used the COI language as a vocabulary to analyze their learning, and even students who were more

experienced online learners still found COI to be useful for this task (Watts, 2019). Additionally, students perceived the benefit of social presence to their learning, even though research shows that adult working professional learners tend to characterize such relationships "as a bonus" or "not something . . . expected" (Ke, 2010, p. 816). Importantly, OSO's notion of cognitive presence seemed to bolster students' awareness of their responsibility for their learning; in particular, students who connected their academic and industry lives practiced a central concept of cognitive presence.

Using COI With Outcomes Program Assessment

COI is a useful framework with which to assess online courses (Hilliard & Stewart, 2019; Lear et al., 2009; Stewart, 2017) and programs (Lee et al., 2006). My outcomes-based assessment (IRB approved) identifies which program learning outcomes students achieve, how well they achieve them, and which assignments and activities students perceived helped them to practice the outcomes. I generally focus on the program's 12-credit core curriculum (four three-credit required classes taught each year), collecting data annually and communicating results biennially.

To conduct outcomes assessment, I use course-embedded assessment (CEA) and a three-question student survey (see Table 10.1). These direct and indirect measures allow me to continually examine and refine program curriculum (Say, 2015). For the CEA, instructors select a major assignment and reflect on each student's performance, identifying which outcomes each student achieved by completing it. Appendix A shows an example spreadsheet given to instructors: the outcomes are listed and the instructor rates student performance for each as below expectations, acceptable, or exceeds expectations, or by indicating that an outcome is not applicable.

Table 10.1. COI and outcomes program assessment (core courses)

		Measure	
Schedule	**Outcomes Assessment**	**Direct**	**Indirect**
Fall, Spring	Course-embedded assessment (CEA) completed by instructors to ascertain which program outcomes students practiced and how effectively	X	
Fall, Spring	Survey to students: 3 questions about how well students were provided opportunities to practice program outcomes		X
	COI Assessment		
Fall, Spring	Survey to instructors: 10 questions about COI presences		X
Every 3rd Year	Focus Group with all program faculty: 10 questions asking about COI presences (*Note*: Replaces instructor survey)		X

Students receive a three-question survey, asking them to identify which outcomes they practiced in the class and which assignments or other tasks helped them to practice the outcomes (Appendix B). Used together, the CEA and survey help me to map which outcomes students practiced and perceived they practiced and to identify gaps between curriculum and outcomes.

This outcomes-based assessment has been useful for refining program curriculum. For example, program assessment showed students did not have adequate opportunities to practice "evaluating and executing team-building and interpersonal communication strategies." We collaborated with communication studies colleagues to include an interpersonal communication seminar and a speech communication-for-industry course as new program offerings. We also use the assessment to refine what assignments and activities we ask students to complete, focusing on aligning these to outcomes.

With the outcomes approach focusing on student learning, pairing it with a COI assessment can help demonstrate the cognitive, social, and teaching presences constructing the program's online communities of learners. I continue to refine my approach using COI for program assessment below, I discuss my pilot results and the changes to methodology that I plan to make COI assessment (see Table 10.1).

Student Survey

To assess student perceptions of the COI teaching, social, and cognitive presences, I have streamlined a popular survey tool used by J. B. Arbaugh and his colleagues (2008). The instrument—a 34-question, multiple-choice survey—has been validated by Swan and her colleagues (2008). Arbaugh's survey has been used in hundreds of studies and lends consistency to the COI literature, especially in terms of assessing COI at a large scale, across institutions and courses (Stenbom, 2018). Designed as a statistical tool, survey results can show the relationship among the presences (Akyol & Garrison, 2008; Stewart, 2019): how do student perceptions of teaching presence affect cognitive presence (Garrison et al., 2010), or how do student perceptions of social presence impact cognitive presence (Shea & Bidjerano, 2009)?

When I initially piloted Arbaugh's lengthy survey for program assessment, my students experienced survey fatigue (especially when students were enrolled in multiple core courses during a given semester), and my participant numbers seemed to reflect that. I also found that student-participant numbers did not lend themselves to the statistical analysis for which the instrument was designed. Thus, I revised the survey from 30+ questions to ten (Appendix C) and plan to pilot it during Fall 2020. When devising the survey, Arbaugh and his colleagues relied on COI literature (Garrison et al., 2000) and used it to determine the questions. The majority of COI studies have retained these definitions (Stenbom, 2018), and I keep these intact in my adapted survey, despite literature arguing for other iterations (Kozan & Caskurlu, 2018).

Students who are cognitively present are more likely to retain course concepts and apply them in other settings. Given this, I asked two questions related to course-concept retention and a third related to course-concept application (Appendix C). These help ascertain whether students have opportunities to take advantage of a "triggering event" (i.e., ill-defined problem), which they then have opportunities to "explore" and investigate (Garrison et al., 2000). Next, students synthesize existing and new concepts to apply content to contexts beyond the course, another important feature of cognitive presence (Rourke & Kanuka, 2009).

Social presence is constituted by interaction among students and instructors, which fosters cognitive presence and enables students to retain and apply course concepts. A key feature of social presence is that students have opportunities for "open communication," and I asked whether students had opportunities to interact and discuss course concepts (Arbaugh et al., 2008). Having students collaborate on common intellectual tasks also cultivates social presence (Oztok & Brett, 2011), so I included two questions related to this, one querying about small-group interaction and the other concerning collaboration and new knowledge.

Teaching presence is achieved through proper course design, discourse facilitation, and direct instruction and feedback (Shea et al., 2010). Thus, I devised three questions, one related to opportunities for idea exchange, another to course design, and a final concerning feedback about student work.

Instructor Survey and Focus Group

Rather than conduct individual interviews to compile instructor perceptions of the COI presences as I did in my pilot study, I now plan to conduct a Qualtrics survey with faculty, which contains ten open-ended questions: three teaching presence questions, four social presence, and three cognitive presence (Appendix D). These questions allow me to track instructor perceptions over time and across courses, identifying themes and patterns, and comparing these to student perceptions. I also plan to collect focus group data from program instructors every three years in lieu of surveys. Focus groups can be enriching, valuable experiences—a useful way to enable "enhanced data quality" in that participants hear other responses and contribute to a conversation, rather than simply responding singularly (Patton, 2015, p. 478).

My pilot study COI program assessment showed that a handful of activities helped to cultivate cognitive, social, and teaching presence: conducting more frequent formative assessment, encouraging student reflection, and facilitating team-based active learning (Watts, 2017). These findings prompted faculty to discuss how such activities are happening in our seminars and how they could be further promoted. We have found that COI assessment enables a better understanding of the practices and behaviors that help students (and help instructors to help students) achieve cognitive, teaching, and social presence. Ar-

ticulating and analyzing these presences allows faculty to continue discovering how what they are doing works and what can be done to help students achieve success.

Communicating COI Program Assessment

A key feature of any program assessment design is communicating results to stakeholders and collaboratively deciding ways to implement recommendations, always striving for continual improvement (Walvoord, 2010). Below, I suggest ways to communicate results with five groups and the benefits of doing so: faculty, advisory board members, university administrators, students, and prospective students.

Faculty, Advisory Board Members, Administrators

Faculty are valuable stakeholders with which to discuss assessment results because of their power to effect change pedagogically and curricularly. Those of us lucky enough to work with enthusiastic, collaborative peers find these assessment conversations energizing. Often, we do not find time to discuss pedagogy, curriculum, and student challenges and successes with our colleagues, but conversations about assessment afford us this opportunity. Faculty also want to hear input about these results from advisory board members, who hold points of view from industry and beyond the department and institution. Thus, I adopted a strategy for assessment dissemination probably used by many programs: write one report (with faculty and board members' input) that is distributed to university administrators, containing the blueprint for proposed change over the long- (5+ years) and short-term.

As director, my institution requires that I submit a biennial "assessment in the major" (AIM) report, listing my program's outcomes, assessment and results, and recommendations. To draft AIM, I discuss results first with faculty, conferring about what to implement and how. Then faculty and I seek feedback from board members at our advisory meeting about these proposed plans for action. The finalized report—a result of conversations with faculty and board members—is submitted to administrators.

Using COI to frame program assessment encourages stakeholders to better understand the practices and behaviors that help students achieve key learning outcomes. Stakeholders seem to appreciate this approach. Board members and administrators want to hear how effectively students achieve outcomes but also how aware students are of cultivating social and cognitive presences and the importance for doing so. They are interested in what constitutes teaching presence and the value of social presence in cultivating deep learning. Faculty appreciate understanding what practices help them facilitate a positive online learning environment that helps set up students for success.

Students and Prospective Students

Prospective and current students do not receive the AIM report, but rather it is communicated to them through informational and promotional web content. Results are woven into the degree's promotional materials and sharing these with prospective students helps to showcase the program's value, combatting perceptions of online learning as isolating and without depth or engagement. Students receive results through program informational content. For example, one AIM report revealed that changes needed to occur with the program's core to align it more effectively with the outcomes. Online advisement materials were updated to reflect the change. Thus, students benefit from the COI theory through its impact on program curriculum and through students' OSO participation. In particular, students seem to welcome the OSO and the opportunities it gives them to reflect on and hopefully improve their online learning experience (Watts, 2019).

The OSO continues, and the cycle of data collection, dissemination and discussion, action-planning, and revision of informational and promotional program content is ongoing. With the merit of online programs still scrutinized, framing outcomes-based assessment using COI and incorporating a learning-focused OSO into the curriculum not only shows what students accomplish and the skills and activities used to achieve outcomes but also encourages students to learn a vocabulary to help them reflect on those behaviors and skills they can cultivate in themselves (and request in others) to help manage and deepen their learning.

References

Akyol, Z., & Garrison, D. R. (2008). The development of a community of inquiry over time in an online course: Understanding the progression and integration of social, cognitive and teaching presence. *Journal of Asynchronous Learning Networks*, *12*(3-4), 3-22.

Allen, I. E., Seaman, J. E., Poulin, R., & Straut, T. T. (2016). *Online report card: Tracking online education in the United States*. Babson Survey Research Group and Quahog Research Group. http://onlinelearningsurvey.com/reports/onlinereportcard.pdf

Allen, J. (2004). The impact of student learning outcomes assessment on technical and professional communication programs. *Technical Communication Quarterly*, *13*(1), 93-108.

Arbaugh, J. B., Cleveland-Innes, M., Diaz, S. R., Garrison, D. R., Ice, P., Richardson, J. C., & Swan, K. (2008). Developing a community of inquiry instrument: Testing a measure of the community of inquiry framework using a multi-institutional sample. *Internet and Higher Education*, *11*, 133-136.

Ashby, A. (2004). Monitoring student retention in the Open University: Definition, measurement, interpretation and action. *Open Learning*, *19*(1), 65-77.

Baker, C. (2010). The impact of instructor immediacy and presence for online student affective learning, cognition, and motivation. *Journal of Educators Online*, *7*(1), 1-30.

Bejerano, A. R. (2008). The genesis and evolution of online degree programs: Who are they for and what have we lost along the way? *Communication Education*, *57*, 408-414. https://doi.org/10.1080/03634520801993697
Brewer, S. A., & Yucedag-Ozcan, A. (2012-2013). Educational persistence: Self-efficacy and topics in a college orientation course. *Journal of College Student Retention*, *14*(4), 451-465.
Brumberger, E. (2011). Visual literacy and the digital native: An examination of the millennial learner. *Journal of Visual Literacy*, *30*(1), 19-46.
Cameron, B. A., Morgan, K., Williams, K. C., Kostelecky, K. L. (2009). Group projects: Student perceptions of the relationship between social tasks and a sense of community in online group work. *American Journal of Distance Education*, *23*(1), 20-33.
Cargile Cook, K. (2002). Layered literacies: A theoretical frame for technical communication pedagogy. *Technical Communication Quarterly*, *11*(1), 5-29. https://doi.org/10.1207/s15427625tcq1101_1
Carpenter, J. H. (2011). A 'layered literacies' framework for scientific pedagogy. *Currents in Teaching and Learning*, *4*(1), 17-33.
Chant, I. (2013). Research: As online degrees become more prevalent, questions linger. *Library Journal*, *138*(18), 23.
Coppola, N. W. (1999). Setting the discourse community: Tasks and assessment for the new technical communication service course. *Technical Communication Quarterly*, *8*(3), 249-267.
Coppola, N., & Elliot, N. (2007). Technology transfer model for program assessment in technical communication. *Technical Communication*, *54*, 459-474.
Coppola, N., Elliot, N., Newsham, F. (2016). Programmatic research in technical communication: An interpretive framework for writing program assessment. *Programmatic Perspectives*, *8*(2), 5-45.
Fogle, C. D., & Elliott, D. (2013). The market value of online degrees as a credible credential. *Global Education Journal*, *3*. http://ssrn.com/abstract=2326295
Hutchens, M. K. (2014). Nontraditional students and student persistence. In D. Hossler & B. Bontrager (Eds.), *Handbook of strategic enrollment management* (pp. 333-350). Jossey-Bass.
Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, *2*(2-3), 87-105.
Garrison, D. R., & Cleveland-Innes, M. (2005). Facilitating cognitive presence in online learning: Interaction is not enough. *American Journal of Distance Education*, *19*, 133-148. https://doi.org/10.1207/s15389286ajde1903_2
Garrison, D. R., Cleveland-Innes, M., & Fung, T. S. (2010). Exploring causal relationships among teaching, cognitive and social presence: Student perceptions of the community of inquiry framework. *The Internet and Higher Education*, *13*, 31-36.
Grigoryan, A. (2017). Audiovisual commentary as a way to reduce transactional distance and increase teaching presence in online writing instruction: Student perceptions and preferences. *Journal of Response to Writing*, *3*(1), 83-128.
Hilliard, L. P., & Stewart, M. K. (2019). Time well spent: Creating a community of inquiry in blended first-year writing courses. *The Internet and Higher Education*, *41*, 11-24.
Johnson-Eilola, J., & Selber, S. (2001). Sketching a framework for graduate education in

technical communication. *Technical Communication Quarterly*, *10*(4), 403-437.
Jones, K. R. (2013). Developing and implementing a mandatory online student orientation. *Journal of Asynchronous Learning Networks*, *17*(1), 43-45.
Ke, F. (2010). Examining online teaching, cognitive, and social presence for adult students. *Computers and Education*, *55*, 808-820. https://doi.org/10.1016/j.compedu.2010.03.013
Kennedy, G. E., Judd, T. S., Churchward, A., & Gray, K. (2008). First year students' experiences with technology: Are they really digital natives? *Australasian Journal of Education Technology*, *24*(1), 108-122.
Kozan, K., & Caskurlu, S. (2018). On the Nth presence for the community of inquiry framework. *Computers & Education*, *122*, 104-118.
Lambert, J. L., & Fisher, J. L. (2013). Community of inquiry framework: Establishing community in an online course. *Journal of Interactive Online Learning*, *12*, 1-16.
Lear, J. L., Isernhagen, J. C., LaCost, B. A., & King, J. W. (2009). Instructor presence for Web-based classes. *Delta Pi Epsilon Journal*, *L1*(2), 86-98.
Lee, J., Carter-Wells, J., Glaeser, B., Ivers, K., & Street, C. (2006). Facilitating the development of a learning community in an online graduate program. *Quarterly Review of Distance Education*, *7*(1), 13-33.
Linardopoulos, N. (2012). Employers' perspectives of online education. *Campus-Wide Information Systems*, *29*, 189-194.
Morrison, D. (2015). Five-step strategy for student success in online learning. *Online Learning Insights*. https://onlinelearninginsights.wordpress.com/2012/09/28/five-step-strategy-for-student-success-with-online-learning/
Oztok, M., & Brett, C. (2011). Social presence and online learning: A review of the research. *Journal of Distance Education*, *25*(3). http://www.ijede.ca/index.php/jde/article/view/758/1299
Parker, K., Lenhart, A., & Moore, K. (2011). *The digital revolution and higher education: College presidents, public differ on value of online learning*. Pew Research Center. https://www.pewresearch.org/internet/2011/08/28/the-digital-revolution-and-higher-education-2/
Patton, M. Q. (2015). *Qualitative research and evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications.
Peery, T. S., & Veneruso, S. S. (2011). Balancing act: Managing instructor presence and workload when creating an interactive community of learners. *Online Classroom*, *3*(8).
Phillips, M. E., & Graeff, T. R. (2014). Using an in-class simulation in the first accounting class: Moving from surface to deep learning. *Journal of Education for Business*, *89*, 241-247. https://doi.org/10.1080/08832323.2013.863751
Rourke, L., & Kanuka, H. (2009). Learning in communities of inquiry: A review of the literature. *Journal of Distance Education*, *23*(1), 19-48.
Say, B. H. (2015). Developing learning outcomes in professional writing and technical communication programs: Obstacles, benefits, and potential for graduate program improvement. *Programmatic Perspectives*, *7*(2), 25-49.
Shackelford, J. L., & Maxwell, M. (2012). Sense of community in graduate online education: Contribution of learner to learner interaction. *The International Review of Research in Open and Distance Learning*, *13*, 228-249.
Shea, P., & Bidjerano, T. (2009). Community of inquiry as a theoretical framework to

foster 'epistemic engagement' and 'cognitive presence' in online education. *Computers & Education*, *52*(3), 543-553.
Shea, P., Li, C. S., & Pickett, A. (2006). A study of teaching presence and student sense of learning community in fully online and Web-enhanced college courses. *Internet and Higher Education*, *9*, 175-190.
Shea, P., Vickers, J., & Hayes, S. (2010). Online instructional effort measured through the lens of teaching presence in the community of inquiry framework: A re-examination of measures and approaches. *International Review of Research in Open and Distance Learning*, *11*, 127-154.
Shearer, R. L., Gregg, A., & Joo, K. P. (2015). Deep learning in distance education: Are we achieving the goal? *American Journal of Distance Education*, *29*(2), 126-134.
Stenbom, S. (2018). A systematic review of the community of inquiry survey. *The Internet and Higher Education*, *39*, 22-32.
Stewart, M. K. (2017). Communities of inquiry: A heuristic for designing and assessing interactive learning activities in technology-mediated FYC. *Computers and Composition*, *45*, 67-84.
Stewart, M. K. (2019). The community of inquiry survey: An assessment instrument for online writing courses. *Computers and Composition*, *52*, 37-52.
Swan, K., Garrison, D. R., & Richardson, J. C. (2009). A constructivist approach to online learning: The community of inquiry framework. In C. R. Payne (Ed.), *Information technology and constructivism in higher education: Progressive learning frameworks* (pp. 43-57). IGI Global.
Swan, K. P., Richardson, J. C., Ice, P., Garrison, D. R., Cleveland-Innes, M., & Arbaugh, J. B. (2008). Validating a measurement tool of presence in online communities of inquiry. *E-Mentor*, *2*(24), 1-12.
Taylor, J. M., Dunn, M., & Winn, S. K. (2015). Innovative orientation leads to improved success in online courses. *Online Learning 19*, 112-120.
Walvoord, B. E. (2010). *Assessment clear and simple: A practical guide for institutions, departments, and general education* (2nd ed.). John Wiley & Sons.
Wang, J., & Wang, H. (2012). Place existing online business communication classes into the international context: Social presence from potential learners' perspectives. *Journal of Technical Writing and Communication*, *42*(4), 431-451.
Watts, J. (2017). Beyond flexibility and convenience: Using the community of inquiry framework to assess the value of online graduate education in technical and professional communication. *Journal of Business and Technical Communication*, *31*(4), 481-519. https://doi.org/10.1177/1050651917713251
Watts, J. (2019). Assessing an online student orientation: Impacts on retention, satisfaction, and student learning. *Technical Communication Quarterly*, *28*(3), 254-270.
Williams, J. M. (2010). Evaluating what students know: Using the RosE portfolio system for institutional and program outcomes assessment. *IEEE Transactions on Professional Communication*, *53*(1), 46-57.
Wooten, B., & Hancock, T. (2009, February–March). Online learning offers flexibility and convenience for teacher education. *Momentum*, 28-31.
Wozniak, H., Pizzica, J., & Mahony, M. J. (2012). Design-based research principles for student orientation to online study: Capturing the lessons learnt. *Australasian Journal of Educational Technology*, *28*, 896-911.

Appendix A: Course-Embedded Assessment Sample Spreadsheet

Course Number_____ Course Name_____

Semester and Year _____

Directions. Select one assignment from your course and type in the name of the assignment below. Submit a copy of the assignment sheet with this completed table. Use the Rating Key to assess how well each student's assignment achieved the ten program outcomes.

Rating Key. 1) Below Expectations, 2) Meets Criteria at Acceptable Level, 3) Exceeds Expectations, 9) Not Applicable

	Outcome 1	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
Student 1					
Student 2					
Student 3					
Student 4					
Student 5					
Student 6					
Student 7					
Student 8					
Student 9					
Assignment Used in this Rating:					

Appendix B: Outcomes Student Survey

1. Which of the following program learning outcomes do you believe ENGL-XXX helped you to practice? (Indicate all those that apply.)
   - Survey and synthesize theoretical concepts and principles about major TPC issues.
   - Select and apply theoretical concepts and principles to the interpretation of technical and professional communication phenomenon.
   - Evaluate relevant scholarship as a means of informing inquiry in technical and professional communication.
   - Select, design and conduct research, using proper methods and methodology, making sound recommendations and drawing logical conclusions.
   - Compose texts, designs and other deliverables, demonstrating ethical, rhetorical, and user-centered strategies.

- Assess documentation for accuracy, adequacy, correctness, accessibility and usability.
- Appraise international and intercultural issues in technical and professional communication, recommending strategies for addressing these issues.
- Evaluate the ways emerging media and digital technologies impact technical and professional communication.
- Plan a documentation schedule and monitor project progress against that schedule.
- Evaluate and execute team-building and interpersonal communication strategies.

2. Rate the usefulness of the following parts of ENGL-XXX in helping you practice these outcomes:
   - Learning Activity 1: Very Helpful / Helpful / Not Helpful / Not Applicable
   - Learning Activity 2: Very Helpful / Helpful / Not Helpful / Not Applicable
   - Learning Activity 3: Very Helpful / Helpful / Not Helpful / Not Applicable
3. What other comments do you have concerning the ways you were encouraged to practice these program outcomes in ENGL-XXX?

Appendix C: Community of Inquiry Student Survey

The community of inquiry (COI) theory was developed to identify what behaviors and practices students and instructors could engage in to help students learn best in online classes. Three presences (cognitive, social, and teaching) are used as lenses with which to identify and assess these behaviors and activities. Please respond to the following questions about your _____ class.

Cognitive Presence: Students who are cognitively present are more likely to retain course concepts and be able to apply them in other settings.

1. This course set up an ill-structured problem for me to research. (Ill-structured problems are multifaceted: they may not have clear solution paths or expected solutions.)
2. This course asked me to discover new ways to address or solve problems.
3. I can see ways to apply aspects of this course's content to other areas of my life (i.e., to other courses, my work).

Social Presence: COI argues that interaction among students and the instructor fosters cognitive presence and enables students to retain and apply course concepts.

1. Interacting with my peers enabled me to construct new knowledge that I would not have been able to construct otherwise.
2. This course gave me opportunities to interact with my peers to discuss problems or concepts.
3. This course asked me to work together in pairs or on a team to collaborate on some aspect of a course assignment or activity.

Teaching Presence: Teaching presence is achieved through properly designing the course, facilitating discourse, and offering direct instruction and feedback about student work.

1. I was given opportunities to exchange ideas about course topics with my peers.
2. The course was designed such that I could identify the activities/assignments I needed to complete and when.
3. I was provided with sufficient and timely feedback about my work.

Final Thoughts

1. If you wish, please comment on any aspects of cognitive, social, and/or teaching presence as they relate to this class.

Appendix D: Community of Inquiry Faculty Survey

1. What are the top three strategies (pedagogies, assignments) that you believe helped to characterize your teaching presence in the online course you are teaching this semester?
2. In what ways do you set boundaries about the limits/scope of your teaching presence to students in the online course that you are teaching this semester? Overall, how are students responding to these strategies?
3. How pleased are you in the ways that you crafted your teaching presence in the online course that you are teaching this semester: what is working well and what do you think needs improvement?
4. Did you actively attempt to cultivate a sense of community (social presence) among the students in the course that you are teaching this semester? If so, how? If not, why?
5. Do you believe that students perceive a sense of community in the course that you are teaching this semester? What led you to draw this conclusion?
6. In general, do you believe that students learn more or learn more deeply when they have an active social presence in online courses? What led you to draw this conclusion?
7. Researchers argue that each student needs to be cognitively engaged in the material, assignments, discussions, etc. in order for deep learning to occur. In what ways do you help prompt students to engage cognitively during the course that you are teaching this semester?
8. What helps you to recognize when students have engaged in deep learning?
9. What do you believe are the roadblocks to students' ability to engage in deep learning in the course that you are teaching this semester?
10. Do you have anything else you'd like to say about teaching presence, social presence or cognitive presence?