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## **The Community of Inquiry Framework Ten Years Later: Introduction to the Special Issue**

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It has been 10 years since Randy Garrison, Terry Anderson and Walter Archer (2000) first introduced the Community of Inquiry (CoI) model. As recounted in the first article in this special issue, the CoI framework was developed to help them make sense of issues confronting their new online graduate program, a program in which computer-based discussion forums played a central role. Because the pedagogy behind online discussion forums assumes that students will work together, not independently as in traditional distance education, a new theoretical model was needed to explain and explore the online educational experience. Thus was born the CoI framework.

The Community of Inquiry (CoI) framework is social constructivist in nature and grounded in John Dewey's (1938) notion of practical inquiry. It is a dynamic process model designed to define, describe and measure elements supporting the development of online learning communities. The three principle elements identified by the CoI model are social presence, cognitive presence and teaching presence. Social presence is defined as the degree to which participants in computer-mediated communication feel affectively connected one to another; cognitive presence is conceptualized as the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse; and teaching presence is defined as the design, facilitation and direction of cognitive and social processes to support learning (Swan, Garrison, & Richardson, 2009).

The model suggests that the online learning experience unfolds in the interaction of these three (Figure 1).

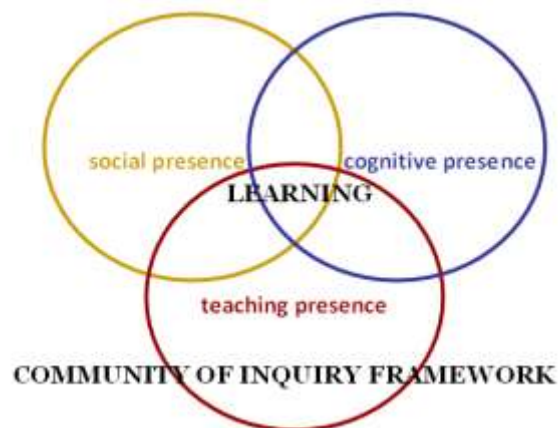


Figure 1: Community of Inquiry Framework

Since its initial formulation, the CoI framework has been adopted and adapted by educators worldwide. It has been used in a variety of ways to inform both research and practice in online and blended learning, many of which are described in the articles in this issue. Most recently, the development of a common CoI survey has resulted in a flurry of new research that is moving our understanding of online learning dramatically forward. This special issue of the *Internet and Higher Education* celebrates the Community of Inquiry model for the major contributions it has made and/or made possible to our understanding of online and blended learning. The articles it contains are described below.

### *Main Articles*

The first article in this special issue is its true introduction. In **“The First Decade of the Community of Inquiry Framework: A Retrospective,”** the three scholars who conceptualized the CoI model, **Randy Garrison, Terry Anderson and Walter Archer,** describe its development and evolution. Their perspective on how the framework evolved as a way to help them make sense of what they viewed as a radically new form of distance education, provides both deeper insights into the CoI model and an interesting glimpse into the serendipitous nature of theory building. Garrison, Anderson and Archer explain the theoretical foundations for each of the three presences in some detail. They also discuss how CoI research grounded in content analyses necessarily expanded to include the development of a common survey instrument that has made possible a variety of large scale, quantitative studies and studies that use the CoI framework to explore the effects of differing instructional strategies on online learning processes. They end by looking forward to the next decade of CoI research and provide us with food for thought.

Garrison, Anderson, and Archer’s introduction is followed by seven full-length articles which report on current CoI research and illustrate how the CoI framework is still breaking new ground in online and blended learning research and practice in a variety of interesting and intriguing ways.

For example in **“A Re-examination of the Community of Inquiry Framework: Social Network and Content Analysis,”** **Peter Shea,** who is well known for his large-scale, quantitative explorations of the development of communities of inquiry in general and teaching presence in particular, looks deeply into interrelationships among teaching, social, and cognitive presence in just two courses using a mixed methodology. Shea and his research team, **Suzanne Hayes, Jason Vickers, Mary Gozza-Cohen, Sedef Uzuner, Ruchi Mehta, Anna Valchova, and Prahalad Rangan,** analyzed all the discourse produced in two Business Management classes that used the same instructional design template but were taught by two different instructors. They used quantitative content analysis to look for patterns in and among teaching, social and cognitive presence. Their findings reveal complex relationships among the three presences and interesting differences between the two classes. In addition, the researchers explored the efficacy of social network analysis (SNA) for understanding the dynamics of online learning within a CoI framework by comparing patterns produced by various SNA metrics with those

developed using the content analyses. Their work should provide us all with ideas for future research, including their call for us to examine all aspects of online courses, not just discussions, for evidence of teaching, social, and cognitive presence.

In **“Student Ratings of the Importance of Survey Items, Multiplicative Factor Analysis, and the Validity of the Community of Inquiry Survey,”** Sebastian Diaz, Karen Swan, Phil Ice, and Lori Kupczynski explore another dimension to consider in analyzing the usefulness of the CoI survey for investigating online learning processes – student perceptions of the importance of the CoI survey items. Working from an inter-institutional sample of 413 students’ ratings of both how well their courses ranked on each of the 34 CoI survey items and how important they perceived each of those items to be, the authors performed a factor analysis on multiplicative scores for each CoI survey item computed as the product of the course rating and the item importance rating. Their findings are in alignment with previous findings concerning the survey and the model. Of special interest are the study’s findings related to social presence. Though frequently given the least attention in comprehensive research, this analysis found the highest degree of parity between what students considered important and their perceptions of effective implementation in this area. From an applied perspective, this article challenges the reader to consider how learning environments might be altered to better accommodate those elements deemed most important by learners and whether such changes would have a significant positive impact on cognition.

**“Exploring Causal Relationships among Teaching, Cognitive and Social Presence: Student Perceptions of the Community of Inquiry Framework,”** by Randy Garrison, Marti Cleveland-Innes, and Tak Shing Fung, reports on a study that used the CoI survey to investigate relationships among the three presences in the perceptions of 205 students enrolled in fourteen different courses offered by two masters level programs. The authors used factor analysis to confirm the tripartite theoretical structure of the CoI model, and structural equation modeling (SEM) to explore relationships among the presences. SEM findings supported the hypothesized fundamental role of teaching presence in the development of both social and cognitive presence, as well as social presence’s role as a mediating variable in the development of the latter. The researchers also found no gender effects on perceptions of any of the presences, but significant differences between programs in perceptions of cognitive presence.

Programmatic differences in perceptions of the presences are further explored in another study that used the CoI survey. In **“Subject Matter Effects and the Community of Inquiry (CoI) Framework: An Exploratory Study,”** Ben Arbaugh, Art Bangert, and Marti Cleveland-Innes describe a study that examined disciplinary differences in the perceptions of social, cognitive and teaching presence among over 1,500 students at two U.S. institutions. The authors distinguish between pure and applied, hard and soft, disciplines and report finding subject area differences, especially in perceptions of cognitive presence, between soft, applied fields and all others. They also suggest that the CoI model may be more applicable to learning in applied disciplines than in pure ones, and invite future researchers to consider how the CoI framework may need to be refined and/or modified to better explain the educational experience in the latter sort of courses. This article and the Garrison et al article which precedes it prompt us to

consider seriously from both research and practical perspective the effects of programmatic differences on the development of communities of inquiry and on online learning in general.

In **“Supersizing e-learning: What a CoI survey reveals about teaching presence in a large online class,”** Lynette Nagel and Theuns Kotzé explore another challenge to the development of the three CoI presences – large class sizes. The authors employed the CoI survey to investigate whether the use of peer review and a variety of content and process scaffolds in a very large online graduate course in research methodology could nurture student perceptions of high levels of teaching, social, and cognitive presence. High ratings for the teaching and cognitive presence items on the survey and good ratings for social presence items attest to the efficacy of the course design. The authors thus argue that it is possible to design large classes that support the development of a community of inquiry. Nagel and Kotzé recommend the use of the CoI survey to study the effectiveness of other online classes of differing sizes and designs. As the unfortunate reality of a changing economy causes instructors to manage ever larger course loads, the implications of this article to practice and faculty training should be given close consideration.

Clearly, Nagel and Kotzé’s findings have practical implications for online and blended teaching and learning. **“Investigating Students’ Level of Critical Thinking Across Instructional Strategies in Online Discussions,”** by Jennifer Richardson and Phil Ice has a similarly practical goal. It describes research that studied the effects of differing kinds of discussions on the quality of the cognitive presence developed within them. The researchers used the indicators and categories from the Practical Inquiry Model (PIM) of cognitive presence (Garrison, Anderson & Archer, 2001) to code a total of 2,516 postings from open-ended, case-based, and debate-oriented online discussions in an undergraduate blended course in educational technology. Their findings revealed high levels but no statistically significant differences in the levels of cognitive presence between the differing types of discussion. However, different discussion types did seem to elicit different indicators within PIM categories. In addition, the authors found that students’ preferred discussion mode, open-ended, actually resulted in lower percentages of higher level cognitive indicators. Clearly more research on discussion strategies is needed.

The final full article in this special issue also focuses on blended learning but from a slightly different perspective; namely preparing faculty to teach blended courses. **Norm Vaughan** discusses how the CoI framework was used to guide faculty engaged in redesigning their courses for blended delivery in **“A Blended Community of Inquiry Approach: Linking Student Engagement and Course Redesign.”** Vaughan describes how the Inquiry Through Blended Learning (ITBL) program at Mount Royal University adapted the CoI model to provide faculty participants with a guided inquiry process for discussing and reflecting on key redesign and implementation questions as developed and taught new versions of their courses in blended formats. Faculty interviews and student surveys based on items derived from the National Survey of Student Engagement (NSSE) were used to explore the effectiveness of the program. Findings

suggest that redesign efforts must be ongoing, but that the CoI framework can be a very useful tool in guiding such efforts.

### *From the Trenches*

The articles in this *From the Trenches* section report on new theoretical approaches, pilot studies and research in progress that use the Community of Inquiry framework to help understand learning in diverse online environments.

The study reported in the first article in this section, “**The Relationship Between Course Socio-Epistemological Orientations and Student Perceptions of Community of Inquiry,**” by **Zehra Akyol, Phil Ice, Randy Garrison, and Rob Mitchell**, categorized along two dimensions – objectivist/constructivist and individual/collaborative -- and the researchers explored whether or not course orientation might affect student perceptions of the three presences. Surprisingly, it did not; regardless of course orientation, level, or discipline, a three-factor solution corresponding to the three presences emerged. Interesting differences and interactions related to age, however, were found.

In the second article in this section, “**Beyond Online Discussions: Extending the Community of Inquiry Framework to Entire Courses,**” **Walter Archer** echoes Shea et al.’s call to look beyond discussions for evidence of social, teaching, and cognitive presence. Specifically, Archer argues that higher levels of cognitive presence might be more likely found in other activities in online courses. He reports that indeed his research group’s exploratory studies have discovered strong evidence of the integration phase of cognitive presence in longer student writings but that they have not yet been able to find expected evidence of resolution in application activities, such as service-learning journals. Clearly, close readings of all aspects of online courses are an important research direction for CoI scholars.

The rest of the articles in the *From the Trenches* section similarly investigate the development of cognitive, teaching, and social presence outside of text-based asynchronous online discussion. They explore the effects of the use of a variety of new multimedia tools – video, audio, haptic input/output devices, LMSs and MUVes -- on the development of communities of inquiry, and in many instances support and extend previous research involving the CoI framework.

For example, **Patrick R. Lowenthal** and **Joanna C. Dunlap** describe their use of digital storytelling as a way to break down barriers that can get in the way of developing a robust community of inquiry in “**From Pixel on a Screen to Real Person in Your Students' Lives: Establishing Social Presence using Digital Storytelling**”. The authors tell how they use self-disclosure, emotional expression and subtle humor in their self-introductions to establish their presence with their students. Besides having students similarly share digital stories as introductions, they have also had students create digital stories that demonstrate conceptual understanding, and used them in formative and summative assessments of student learning.

**Douglas Archibald** similarly explored the use of digital stories in a study related to his Research Design Learning Resource (RDLR), a collection of resources concerned with research design and centered on a series of videos in which exemplary researchers talk about their designs. In **“Fostering the Development of Cognitive Presence: Initial Findings Using the Community of Inquiry Instrument,”** Archibald discusses research in which he used the CoI survey to assess the effectiveness of the use of the RDLR in ten research methodology courses. His results suggest his use of the RDLR enhances the development of the three presences and supports other research (Shea & Bidjerano, 2009; Garrison, Cleveland-Innes & Fung, in this issue) which finds that teaching and social presence predict the development of cognitive presence.

**“Facilitating Discourse and Enhancing Teaching Presence: Using Mini Audio Presentations in Online Forums”** reports on a pilot study of the effects of instructors’ audio feedback on student perceptions of teaching presence undertaken by **Laurie Dringus, Martha Snyder, and Steve Terrell**. The authors collected quantitative and qualitative information from students concerning their perceptions of teaching presence related to mini-audio presentations (MAPs) embedded in online discussion. Their preliminary work suggests that audio feedback enhances teaching presence, and so supports and has the potential to extend the work of Ice, Curtis, Phillips, and Wells (2007).

Haptic technologies employ tactile and/or force feedback in both input and output devices to convey information through kinesthetic sensory channels. In **“The Haptic Paradigm in Education: Challenges and Case Studies,”** **Felix G. Hamza-Lup and Ioana A. Stanescu** give a brief overview the evolution of haptic technologies and explore the potential of haptic devices to enhance the development of social presence in particular and communities of inquiry in general. This piece asks the reader to consider how sensory input will change the way in which students are presented with academic challenges and the manner in which exploration occurs. As the authors illustrate with a review of near-horizon applications, contemplating how to incorporate such technologies into the learning experience may soon move from the realm of theory to application.

In **“The Effect of Learning Management Systems on Student and Faculty Outcomes,”** **Beth Rubin, Ron Fernandes, Maria D. Avgerinou and James Moore** report on a really interesting ongoing study of the effects of differences in learning management system (LMS) interfaces that have an effect on student satisfaction and the development of social, cognitive and teaching presence in online course. In particular, the research will explore the effects of differences in administrative structures, feedback tools, and support for communication related to LMS design in approximately twelve fully online courses in four different schools at DePaul University. As the LMS selection and migration process can be highly disruptive, from an institutional perspective, the implications of this line of research should be considered highly significant.

**Melissa Burgess, John Slate, Ana Rojas-LeBouef and Kimberly LaPrairie** used both the Multi User Virtual Environment Education Evaluation Tool (MUVEEET), to collect

observations, and the CoI survey, to collect student perceptions, of social, cognitive, and teaching presence in two classes held in the Multi User Virtual Environment (MUVE), *Second Life*. In **“Teaching and Learning in Second Life: Using the Community of Inquiry (CoI) Model to Support Online Instruction With Graduate Students in Instructional Technology,”** they report that both instruments and the CoI framework itself were very useful for understanding interactions in MUVES. As serious games and augmented reality become ubiquitous in education the importance of understanding that, though environmentally enhanced, community remains a foundational aspect of the educational experience should be reiterated to ensure pedagogically appropriate design.

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