

# Chapter 7

## Social Construction of Knowledge and the Community of Inquiry Framework



Karen Swan

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### Introduction

The Community of Inquiry (CoI) framework was developed by three researchers from the University of Alberta who were interested in exploring the learning that took place among participants in computer-mediated discussions. Garrison, Anderson, and Archer (2000) grounded their thinking in Dewey's (1938) social constructivist notions, which placed inquiry at the center of the educational experience and a community of learners at the heart of inquiry. In the 20 years since Garrison, Anderson, and Archer first shared their model of the kinds of supports needed to develop a robust community of inquiry in online environments, online learning has grown to be a major factor in higher education and the CoI framework has come to inform research and practice in online and blended learning around the world.

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K. Swan (✉)

Educational Leadership, University of Illinois Springfield, Springfield, USA  
e-mail: [kswan4@uis.edu](mailto:kswan4@uis.edu)

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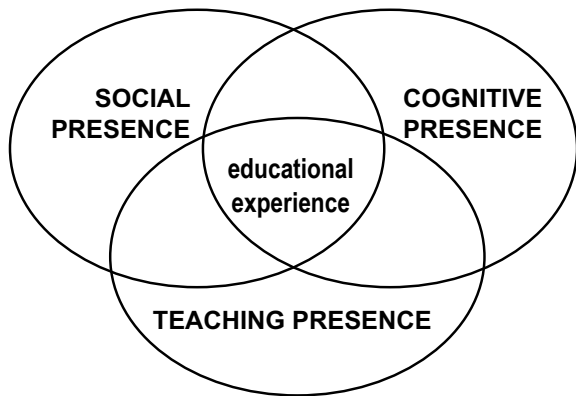
## Community of Inquiry Framework as a Model for Social Construction of Knowledge

The CoI framework is a social constructivist model of learning processes in online and blended educational environments. Social constructivist theorists assert that meaning is primarily constructed through social interactions, hence that learning is essentially a social activity, and that our understanding of the world is constructed through communication, collaborative activity, and interactions with others (Vygotsky, 1978).

The CoI framework is a process model of learning in online and blended environments where the social construction of knowledge is made nontrivial by the separation of course participants in time and space. It assumes that, especially in higher education, worthwhile educational experiences are embedded in communities of inquiry composed of teachers and students, and that learning occurs within such communities through the interaction of three core elements: cognitive presence, social presence, and teaching presence (Fig. 7.1). The CoI framework is a dynamic model of the interactions among these core elements, which are believed necessary for both the development of community and the pursuit of inquiry in online courses (Swan, Garrison, & Richardson, 2009). The framework is seen as dynamic in that the relative import of the three presences and their elements changes as online courses progress. One might better imagine the three circles in Fig. 7.1 as constantly changing in size and overlap.

In the years since it was first used to describe the kinds of supports needed to develop a robust community of inquiry in online environments, the CoI framework has grown to inform research and practice in online and blended learning around the world. The three presences that make up the CoI framework are explained in the sections which follow.

**Fig. 7.1** The CoI framework (adapted from Garrison et al. 2000)



### Cognitive Presence

In the CoI framework, cognitive presence is defined as the extent to which learners are able to construct and confirm meaning in a virtual community of inquiry (Garrison, 2016). Dewey (1933) described the complete cycle of reflective thinking as beginning with a problem, followed by five phases of reflective thought (suggestion, intellectualization, guiding idea, reasoning, and testing), and ending with resolution. This concept was the genesis for the Practical Inquiry Model which Garrison, Anderson, and Archer (2001) developed to describe cognitive presence in the CoI framework.

The Practical Inquiry Model is framed along two dimensions (Fig. 7.2). The vertical axis represents the psychological and sociological sides of the educational process identified by Dewey, the juxtaposition of the individual’s private and reflective worlds with the community’s shared world of discourse. Practical inquiry iterates imperceptibly between these two worlds. The horizontal dimension of the model describes the divergent processes of perception and analysis contrasted with the convergent processes of conception and synthesis. The points of perception and conception are points of insight and understanding. At each of these points, we see the fusion of the psychological and sociological and the unity of the educational experience that Dewey advocated.

More importantly, the Practical Inquiry Model describes four phases in the pragmatic inquiry process. Practical inquiry, according to the model, begins with a *triggering event*, in the form of an issue, problem, or dilemma that needs resolution,

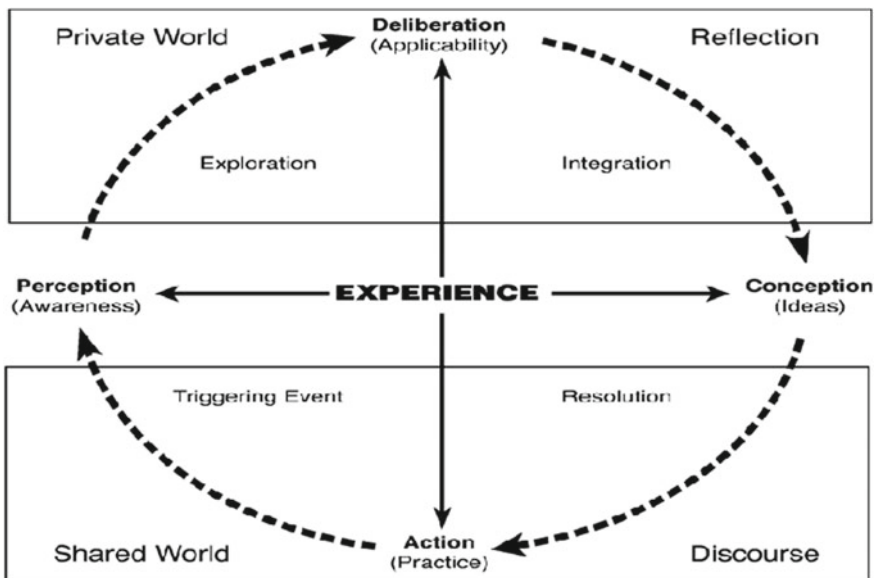


Fig. 7.2 Practical Inquiry Model (Garrison et al., 2001) © 2000, D. R. Garrison. Used with permission

which elicits a natural shift to *exploration*, the search for relevant information that can provide insight into the challenge at hand. As ideas crystallize, there is a move into the third phase—*integration*—in which connections are made and there is a search for explanations. Finally, there is the selection and testing of the most viable solution and *resolution* around it. The four phases described in the model are a telescoping of Dewey’s phases of reflective thinking for the purposes of parsimony and understanding. Consistent with Dewey’s rejection of dualism, the phases should not be seen as discrete or as necessarily progressing in a linear fashion. In the CoI framework, however, progress through to resolution is seen as evidence of critical or deep thinking.

### ***Social Presence***

In the CoI framework, social presence is defined as the ability of participants to project themselves socially and emotionally in an online class, and correspondingly their ability to perceive other participants in that class as “real” (Swan & Shih, 2005). It is the component in the CoI framework that supports the “social” part of the social construction of knowledge. The term “social presence” was originally coined by communications researchers who linked it to the capacity of various media to transmit the oral and visual cues which are an important part of face-to-face communications. Indeed, these researchers argued that computer-mediated discussion was a poor medium for the transmission of social presence and so a poor vehicle for learning (Short, Williams, & Christie, 1976). Happily, educators who were actually using such discussions in their courses disagreed, co-opted the concept, and focused it on participant perceptions, on how their students were, in fact, experiencing online discussion (Gunawardena, 1995; Richardson & Swan, 2003), rather than on the technical capacities of computer-mediated communication. It is important to note, however, that the concept of social presence predates the development of the CoI framework and consequently is conceptualized differently by differing scholars (Lowenthal & Snelson, 2017).

In the CoI framework, social presence is conceptualized as embodied by three types of behaviors—*affective expression*, *group cohesion*, and *open communication*. *Affective expression* involves the use of personal expressions of emotions, feelings, beliefs, and values to project presence. *Group cohesion* refers to interpersonal communication that builds and sustains a sense of community. *Open communication* includes behaviors that encourage interaction and critical reflection by recognizing, complimenting and responding to others. These three behaviors are thus seen as building on each other (in the order given) to create an environment that supports the social construction of knowledge.

## ***Teaching Presence***

Garrison et al. (2000) contend that while interactions between participants are necessary in virtual learning environments, interactions themselves are not sufficient to ensure effective online learning. Online interactions need to have clearly defined parameters and be focused in a specific direction, toward a particular goal; hence the need for teaching presence. Teaching presence includes course design and organization, the facilitation of learning, and direct instruction in online and blended courses. Although these are all tasks that are generally undertaken by teachers, in the CoI framework teaching presence is not seen as attached to them but rather conceptualized as distributed across teachers, students, and materials. In the CoI framework, the third element is thus “teaching” not “teacher” presence. It is seen by many as the critical presence, the presence without which the other two presences will not develop.

Garrison and Anderson (2003) identified three elements that contribute to the development of teaching presence in online courses—the design and organization of instruction, the facilitation of learning, and direct instruction—all of which deserve careful attention. The first category, *design, and organization*, cannot be neglected in an online learning environment, especially as regards the clarity and consistency of course organization and clear statements of goals and objectives. The selection of worthwhile collaborative and other learning activities is also an important part of course design. *Facilitating learning* is particularly focused on facilitating online discussion, where it is important to be supportive and present, but also applies to facilitating collaborative activities and encouraging individual student learning. There will, of course, be times when it is necessary to intervene directly in online discussions to correct misconceptions, provide relevant information, summarize the discussion, or provide some metacognitive awareness. This involves the third category of teaching presence, *direct instruction*, which also includes any lecture-like material included in online courses, as well as instruction included in feedback to students.

## ***Other Presences***

In the years since the CoI framework was first developed, researchers have proposed additional presences to address purported gaps in the model. The more important of these are *emotional presence* (Cleveland-Innes & Campbell, 2012) which sees all three presences as varying depending on students’ emotional engagement, *learning presence* (Shea & Bidjerano, 2012) to account for the contributions of student intention to the educational experience, and *instructor social presence* (Richardson & Lowenthal, 2017) to acknowledge the “direct and significant effects” (p. 86) relationships with instructors have on student learning. It is interesting to note that these last two additional presences put the important actors—students and instructors (teachers)—and their actions back into the model. Although both these additions have

their proponents, Garrison (2016) maintains the sufficiency of the CoI framework as it stands and argues that any reconceptualization must be strictly validated.

## Research on the CoI Framework

The CoI framework was originally proposed as a structure for studying discussion in online classes. Accordingly, early research in the area involved content analyses of such discussions looking for evidence of the presences in students' verbal behaviors. Content analyses of online discussions have supported the conceptualization of the three presences and given us insight into how they develop in online courses (Akyol & Garrison, 2008; Swan, 2003). It should be noted, however, that content-based evidence for the integration and resolution phases of cognitive presence has been thin (Garrison & Arbaugh, 2007). The identification of behaviors coded as cognitive, social, and teaching presence has also given instructors and designers ideas for enhancing their development.

A second common approach to using the CoI framework to study online learning involves survey research. Researchers studying social presence built on Gunawardena's (1995) original social presence survey to demonstrate its existence and link it to student satisfaction and perceived learning in online courses (Richardson & Swan, 2003; Swan & Shih, 2005). Similar survey research linked teaching presence to student satisfaction and perceived learning, and demonstrated its distributed nature (Shea, Li, Swan, & Pickett, 2005). A breakthrough for this approach came when several CoI researchers got together to create a survey that measured all the presences. The survey was refined through fifteen iterations, and the resultant instrument was validated at four institutions in the US and Canada in the summer of 2007 using confirmatory factor analysis (Arbaugh et al., 2008). Numerous studies have since supported this result (Garrison, Cleveland-Innes, & Fung, 2010; Kozan & Richardson, 2014). The final version of the survey (<https://coi.athabasca.ca/coi-model/coi-survey/>) consists of 13 teaching presence, 9 social presence, and 12 cognitive presence items, which include at least 3 items addressing each of the elements in each of the presences. In addition to confirming the CoI model, the development of this instrument made it possible to comparatively measure all the presences and to study the relationships among them.

The CoI survey has been translated into many different languages and used around the world to both study online learning and inform its practice (Ma et al., 2016; Yu & Richardson, 2015). Researchers using the survey have confirmed links among the presences; several investigations employing structural equation modeling have found that teaching presence has a direct impact on the cognitive presence and social presence, as well as an indirect impact on cognitive presence with social presence as a mediator (Kozan, 2016; Shea & Bidjerano, 2009). This common finding suggests that teaching presence is critical for the development of a community of inquiry. The CoI survey has also been used to uncover subject matter differences in student perceptions of the presences (Arbaugh, Bangert, & Cleveland-Innes, 2010) which

suggests differing values and structures of communities of inquiry in different academic domains.

Other researchers have used the CoI survey to explore the effects the development of the CoI presences can have on other educational outcomes. Ke (2010) found small to large correlations between various components of social, teaching and cognitive presence and knowledge–construction interactions. Ice, Layne, and Boston (2017) documented the important role social presence plays in student success, finding that two social presence items, and these alone, predicted 21% of term-to-term retention in an undergraduate population of over 50,000. Yang, Quadir, Chen, and Miao (2016) found that student perceptions of the presences had a significant effect on learning performance in a blog-based online course. Swan, Day, Bogle, and Matthews (2014) used student CoI scores to guide iterative improvements to core courses in a masters level educational leadership program resulting in significantly improved outcomes in three out of four courses. Other researchers have used the CoI survey to explore the effects of the use of various technologies on online learning processes (Lowenthal & Mulder, 2017).

## Critiques and Future Research

There are, of course, critics of the CoI framework. Generally, critiques center on the cognitive presence constructs and both the absence of evidence of resolution in online discussion and inconsistent links between it and learning outcomes (Breivik, 2016; Maddrell, Morrison, & Watson, 2017). Future work around the CoI framework should surely explore this concept. Another issue involves confusion surrounding the social presence concept (Lowenthal & Snelson, 2017), which might be further addressed in the greater online learning community. The concepts of learner and instructor social presence should also be further investigated. Nevertheless, the CoI framework has demonstrated its worth in guiding research and practice around the world, especially in the context of studying and improving online courses and programs. Moreover, because one of the biggest strengths of the CoI framework, and the CoI survey, in particular, is the breadth and consistency in its application, scholars should be cautious and mindful in any changes to it that they consider.

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**Dr. Karen Swan** is the Stukel Professor of Educational Research and a Research Associate in the Center for Online Learning, Research, and Service at the University of Illinois Springfield. For the past 20 years, she has been teaching online, researching online learning, and writing extensively about her experiences. She received the Online Learning Consortium (OLC) award for Outstanding Individual Achievement, the National University Technology Network Distinguished Service Award, and the Burks Oakley II Distinguished Online Teaching Award for her work in this area. She is also an OLC Fellow and a member of the International Adult and Continuing Education Hall of Fame.

e-mail: [kswan4@uis.edu](mailto:kswan4@uis.edu)