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# E-Learning in the 21st Century

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A Community of Inquiry Framework for  
Research and Practice

Third Edition

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### **Introduction**

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Information and communication technologies have socially and economically reshaped society. These same innovations, however, have not had a commensurate influence in the educational domain. Notwithstanding the many inroads that information and communication technologies have made in education, passive information transfer still dominates the educational enterprise. Moreover, there is a growing recognition that we are not taking full advantage of connectivity opportunities for the development of critical thinking and inquiry that has become the foundation of a knowledge-based society. Rethinking conventional education in light of technological developments and the need for higher-order educational outcomes is shaking the foundation of the educational enterprise. E-learning is the nexus of technological and pedagogical developments which has led to insights into deep and meaningful learning.

The emergence of e-learning with its sustained connectivity has demonstrated that deep and meaningful learning is not limited to the face-to-face classroom experience. E-learning is transformational in how we think about educational experiences in terms of sustained communication and collaboration. Ubiquitous communication technologies that can sustain the connection of learners and instantly access information have significantly shifted our conception and acceptance of e-learning. At the educational core is an awareness that students need to be engaged in sustainable learning communities that support reflective discourse and deep approaches to learning. The affordances of ubiquitous and powerful communications technologies with their ability to create and sustain communities of learners have brought e-learning into the mainstream of educational thought and practice.

Education is being transformed as a result of pedagogical advances made possible by e-learning. Educational approaches in the form of sustained e-learning communities are having us reflect on what are worthwhile and relevant educational experiences.

E-learning is pushing teaching and learning design to evolve and reflect a more authentic and accurate representation of how we as humans,

actually learn. What appears to be a “new” era of knowledge delivery, actually reflects how humans have traded in knowledge for millions of years. Our individualistic educational culture is beginning to recognise the wisdom of collective principles in learning and knowledge.

(Wright, 2015, p. 26)

While it may seem surprising to mainstream education, e-learning is not a radical new innovation but a return to traditional values associated with discourse and collaborative inquiry that distinguishes human development. Innovative e-learning practices represent authentic approaches to teaching and learning based on collaboratively constructing meaning through critical reflection and discourse.

It is this convergence of technological developments and a rethinking of effective educational experiences that has driven e-learning innovation to the point we are today. This book provides a coherent understanding of e-learning and how this innovation is transforming how educators are approaching teaching and learning. E-learning as described here focuses on its potential to create and sustain communities of inquiry. In the context of a rapidly changing knowledge society, the need is to evolve the learning experience in a way that models and prepares students for an increasingly connected knowledge society. However, e-learning will fail if we merely add on to or simply repackage passive educational designs. This challenge requires a roadmap in the form of a coherent framework to guide our understanding and development of e-learning experiences. We begin with understanding what we mean by e-learning.

## E-Learning Described

In its essence, e-learning is the utilization of electronically mediated asynchronous and synchronous communication for the purpose of thinking and learning collaboratively. This definition is an explicit recognition of the technological foundation of e-learning in the form of the Internet and associated communication technologies whose distinguishing characteristic is to not only connect individuals at a distance but to create virtual communities. The term e-learning came into use in the mid-1990s along with developments in the World Wide Web and interest in asynchronous discussion groups. The goal of e-learning was to explore the creation of communities of learners who could remain connected independent of time and location through the use of information and communication technologies. These groups of learners quickly evolved into educational communities of inquiry whose goal was to collaboratively engage in discourse and reflection with the intent to construct personal meaning and confirm mutual understanding. This perspective reflects an educational approach that is being increasingly adopted with the emerging possibilities of

communication technologies that can cost-effectively build and sustain learning communities over time.

Beyond the definition and origins of e-learning, the two primary applications that constitute e-learning are online and blended learning. Fully online learning is a form of distance education that had its genesis in the field of computer conferencing with its focus on thinking and learning collaboratively (Garrison, 2016). Because of its collaborative nature, online learning is very different from traditional distance education that had its focus on content delivery and autonomous approaches to learning. Moreover, blended learning has become the most prevalent application of e-learning in traditional educational institutions. Paradoxically, the reality is that much of “e-learning innovation has taken place on-campus” (Richard, 2005, p. 69). E-learning in the context of blended learning has shifted the thinking of educators in terms of transformative course and program redesign.

E-learning diverges fundamentally from the autonomous industrialized form of traditional distance education where the educational approach was shaped by the available technology of the times. E-learning is first and foremost directed to providing an accessible and collaborative educational experience. While e-learning can make education accessible at a distance, it represents very different educational characteristics and possibilities. Today, distance has become but a relatively minor structural constraint in providing a quality collaborative thinking and learning experience. E-learning represents a true paradigm shift from a traditional distance education perspective. It represents a shift from the industrial production of prepackaged study materials to educationally shaping the learning experience through the thoughtful application for thinking and learning collaboratively.

E-learning is a distinct educational branch that has its roots in computer conferencing. The distinguishing feature of e-learning is its unique capability to support discourse over time and distance. To focus only on access to information would simply ignore the distinguishing characteristic and innovative possibilities of e-learning to engage participants in open communication. As such, e-learning is not a commodity that is pre-produced and downloaded electronically to be assimilated in whole by an autonomous learner. For these reasons we address independent study only to provide historical context and conceptual understanding of what distinguishes e-learning. The holistic view of the educational transaction emphasizes that we cannot separate the personal and the social. In reality personal reflection and shared discourse are only separated in the abstract. In this way, the potential of e-learning reflects our educational ideals by using advances in information and communication technologies to support the collaborative advantages of human cognition. It is these collaborative characteristics and possibilities that are the central themes of this book.

The theory and practice of e-learning, with its focus on traditional collaborative assumptions and approaches, reflect the digital era of thinking and

learning. The digital era of education associated with e-learning approaches is marked by a return to a craft model of designing collaborative educational experiences (Garrison & Cleveland-Innes, 2010). The digital era reflects a connected society whose success is dependent upon collaborative approaches to thinking and learning. At the same time, for e-learning to be fully integrated in the mainstream of higher education, we must not undermine or discount the value of face-to-face educational experiences. In this regard, an important corollary and caveat is that e-learning must not be viewed as replacing the enormous advantages of face-to-face discourse. E-learning must be seen as a means to integrate the strengths of face-to-face and online learning experiences. The potential of e-learning to merge verbal and written discourse, unconstrained by time, has caused educators to rethink the possibilities for engaging campus-based students.

For these reasons, e-learning is described here in terms of both online and blended learning. It has also been noted that e-learning is not a synonym for distance education. With the proliferation of information and communication technologies, distance has become a minor constraint. In an e-learning scenario, communities of learners are able to sustain themselves productively across time and space and be enriched immeasurably through the content of the Internet. The Internet can be a useful source of ideas to complement the direct injection of ideas associated with the defined content of the course. But this does not just happen by mindlessly adopting information and communication technologies. Our educational ideals must drive the vision. These ideals are captured in the Community of Inquiry (CoI) framework that provides the principles and guidelines that make e-learning a viable reality in mainstream education.

## A New Reality

It has become apparent that e-learning is not simply another technological innovation that ultimately has little impact on the educational experience. The reason is that e-learning has the potential to offer an open system that blends access to information and purposeful communication into a dynamic and intellectually challenging learning community. E-learning transforms education in ways that extend beyond the delivery of content. Surfing the Internet is not much better than wandering through a library; neither provide opportunities for discourse and purposeful educational experiences. Thinking and learning collaboratively, however, provide opportunities for deep and meaningful learning experiences.

Not long ago, the provision of increased learner independence meant a corresponding loss of collaboration and increased isolation. Before e-learning, independence and interaction were contradictory in an educational context—more of one inherently meant less of the other. From an educational perspective, the “e” in e-learning stands for more than electronic; it can also

stand for extending and enhancing the learning experience. It is how we take advantage of e-learning’s possibilities that is of educational importance. To realize the potential of e-learning is to see the educational experience as an open but purposely cohesive communication system.

Education is about ideas not isolated bits of information. E-learning’s transformative power and capacity to add value is based upon the means to cope with and make sense of the proliferation of information. While e-learning can support passive information acquisition approaches to learning, the real impact is to precipitate new approaches that recognize and seize e-learning’s collaborative possibilities. In reality, this may well be a back-to-the-future scenario as we return to historical collaborative educational ideals and practices associated with communities of learners engaged in critical discourse. These communities are where individual experiences and ideas are recognized and discussed in light of societal knowledge, norms and values. These are communities of inquiry where independence and collaboration are not contradictory ideas but the essential elements of a unified process and qualitative shift in how we approach a deep and meaningful educational experience.

E-learning in the form of online and blended approaches to learning has attracted much attention. However, its value is not faster access to information, or even connecting people in continuous ways. The value of e-learning is as a catalyst to rethink its capacity to stimulate and guide the quest to personally construct meaning and collaboratively confirm knowledge. Upon reflection, it should be no surprise that most research into using technology for educational purposes has shown no significant differences in learning outcomes between traditional and technically advanced media. The explanation of this well-known “no significant difference” (NSD) phenomenon is that we should not expect to find significant differences if we only measure simple recall of information. This can be accomplished regardless of how that information is transmitted. Changing the medium of transmission without changing the expectations and learning experience does not address the quality of learning outcomes. It is the recognition of the potential of e-learning to create and sustain purposeful learning communities engaged in critical discourse that is transforming higher education.

In the mid-1980s, the personal computer became accessible to a large and growing number of people. Today, it is personal computing that is the interface of the Internet and the means to connect entire societies setting the stage for the emergence of e-learning. With the help of community of inquiry research and practice we are beginning to understand the extent to which e-learning can be made to meet the needs of learners in the digital era. With the ubiquity of information and communication technologies that offer multiple forms of communication, we are currently rethinking the educational experience in terms of communities of inquiry unrestricted by time and distance.

## Conclusion

Information and communication technologies, with their multiple media (text, visual, voice) and their capacity to sustain interaction, have made possible e-learning developments. However, this is not happening based exclusively on the technology. While adoption of e-learning approaches has been accompanied by an understanding of communication technologies, the acceptance in mainstream education is based on the educational deliverables. That is, a collaborative thinking and learning approach sustainable over time and space. At the same time, the complexities of collaboration, context and technology characteristics do not lend themselves to easy or simplistic best practices. There are no simple rules or recipes for designing and delivering an effective e-learning experience grounded in collaborative constructivist ideals. A collaborative educational experience demands the experience and insight of reflective, flexible and knowledgeable educators to translate principles and guidelines to the ever changing contingencies and exigencies of their particular environments.

In realistically addressing the complexities of e-learning, the goal is to provide conceptual order along with corresponding principles and guidelines that will have value for educators. Therefore, the challenge for the reader is to make sense of the ideas presented here by translating the concepts and ideas and applying them pragmatically to their unique educational environment. To do this, we need to ask what e-learning will allow us to do to create a worthwhile educational experience that meets the demands of a knowledge society. It is not about entrenching anachronistic and deficient approaches such as lecturing by using technologies to access more disjoint and incomprehensible information. Nor is it about simply having students experience the same passive learning experience through a different medium.

Increasingly, higher education is returning to its roots by focusing on the values and practices associated with collaborative approaches to learning. This is a reaction to the dominant individual and isolating approaches to learning that have evolved over the decades largely due to expanded access to education and the need for efficiency. This has meant the model of small seminars and opportunities for discussion and debate become increasingly limited. However, it is now time to recast the educational dinosaur and utilize the technologies of learning to move away from the large lecture hall and transmission model. Education is but an illusion if it simply disseminates information without actively supporting critical thinking and discourse with the goal to construct meaningful knowledge. Our purpose is not simply to advocate or promote the use of e-learning. The intent and benefit is to understand the need and nature of learning in a connected world; and to explore the implications of a collaborative and constructive educational experience for a knowledge society.

## Part I

# The Conceptual Framework

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The goal of this book is to provide a framework for understanding the application of e-learning in higher education. This understanding will serve to guide e-learning research and practice for purposes of facilitating higher-order learning. However, before we can construct a coherent theoretical framework, we must explicate the foundational assumptions and perspectives upon which this book is based. Evidence and insights are explored in each chapter.

# Theoretical Foundations

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A theoretical framework for teaching and learning will reflect fundamental values and beliefs about a worthwhile educational experience. It is by making explicit the philosophical assumptions and theoretical elements that we reveal our educational ideals. Only then can a framework have pragmatic value to reveal and guide how to approach purposeful thinking and learning. Such a framework is of paramount importance when adopting new communication technologies that can fundamentally alter the teaching and learning transaction. In this regard, e-learning has become the protagonist for change in higher education, but the plot needs purpose and direction. It is our theoretical ideals that ultimately guide the transformation of how we approach thinking and learning in an increasingly connected world.

The goal of this chapter is to outline the assumptions, concepts and principles that underpin a theoretical framework for e-learning. The fundamental questions addressed are associated with the nature of a worthwhile educational experience whose boundaries have been expanded with the adoption of information and communication technologies.

### Philosophical Perspective

While new and emerging communication technologies will most certainly be central in the support of new approaches to teaching and learning, sound educational principles must inevitably guide the implementation of these innovations if we are to realize meaningful and worthwhile learning experiences and outcomes. However, before exploring specific concepts and principles, we must be clear as to the assumptions that shape this framework.

The foundational perspective of the theoretical framework that shapes this book reflects a “collaborative constructivist” view of teaching and learning. It is a recognition of the inseparable relationship between the social environment and personal meaning making. This dynamic reflects the interplay between socially redeeming knowledge and individual meaning. More specifically, collaboration and constructivism correspond respectively to the teaching and learning responsibilities of an educational experience.

The teaching and learning transaction described here is a coherent representation and translation of the dynamics of a collaborative and constructive educational experience. The recognition of these two interdependent interests is crucial in constructing a theoretical framework through which we can understand and apply e-learning approaches for educational purposes.

Philosophically, this collaborative constructivist perspective is associated with the work of John Dewey. Dewey (1938) identified the principle of “interaction” which unified the subjective (personal) and objective (social) worlds in an immediate timeframe. Through this interaction, ideas are generated that illuminate the external world. That is, meaning is constructed through repeated sharing of thoughts and ideas. Through purposeful collaboration, ideas are communicated and knowledge is constructed and confirmed. Dewey rejected all dualistic thinking—particularly with regard to the individual and society. For Dewey, society and the individual cannot exist separately, nor can one be subordinated to the other (Dewey & Childs, 1981). Therefore, to appreciate an educational experience is to understand this interplay between personal interests and experience infused with societal values, norms and knowledge. This creates a constructive tension between individual interests and social norms whose dynamic must be monitored and managed to maintain an educationally productive balance. Educationally, this collaborative constructivist approach is realized in the teacher and student transaction.

Dewey's (1938) concept of an activity-based education describes an educational experience as a “transaction taking place between an individual and what, at the time, constitutes his environment...” (p. 43). For Dewey (1916), transactional communication is the defining component of the educational experience when students transform the inert information passed to them from another and construct it into knowledge with personal application and value. Another contributor to this socially situated transactional view of learning was Vygotsky. Vygotsky believed that “both individuals and society are mutually produced and reproduced” (Wells, 2000, p. 55) and by extension in “the notion of learning as a process of inquiry” (Lee & Smagorinsky, 2000, p. 6). Consistent with the view here, Vygotsky (1978) saw high level cognitive functioning (critical thinking and discourse) as being manifested interpersonally from which the individual then constructs personal meaning.

Collaboration must be distinguished from cooperation that essentially lacks the shared influence and contribution to the task. In a cooperative enterprise, participants independently offer their ideas or solution. Collaboration on the other hand is dependent upon open communication and a cohesion of purpose directed to critiquing and constructing shared solutions. This shared approach expands personal construction of meaning to critically consider other thoughts and possibilities. Furthermore, this commitment to collaborative thinking and learning in an educational context requires a sense of community and cohesion. Education is a social enterprise dependent on creating a sense of purpose and belonging. The inseparability between

the individual and the group draws our attention to the nature of an educational community that can support deep and meaningful learning experiences that have meaning for the individual and value to society.

There is an enormous gap between connection and community (Garrison, 2013). Community is defined by purpose, collaboration and trust. Moreover, an educational community is greatly influenced by societal knowledge and expectations that must be balanced by open communication that encourages critical and creative thinking and learning. This process of inquiry provides a roadmap of how thinking is distributed across a community of learners. From this perspective, the core dynamic of a community of inquiry is the integration of personal reflection and discourse where meaning can be critiqued and understanding realized. Shared responsibility creates an environment for thinking and learning collaboratively.

### Thinking and Learning Collaboratively

We never learn in isolation. It is an illusion, a mistaken belief, which makes us think that we are self-directed learners—that we think and learn as individuals. The reality is that we cannot avoid being influenced by our environment. We are influenced directly through our experiences whether that is with our physical world or through communication with others. Thinking and learning occurs as we receive input through all our senses. A child learns not simply by seeing and hearing. Inevitably they want to touch and taste. Only through multiple inputs do we learn in deep and meaningful ways. We are constantly testing our thoughts through action. In educational contexts this is first done through expression, and if the environment will allow it, by applying ideas and getting feedback as to the outcome of specific actions. This is referred to as practical inquiry by Dewey.

Practical inquiry speaks to the inseparability of the individual and the community. It is to the fusion of the personal and social that is the essence of a community of inquiry. A community of inquiry is a collaborative approach to thinking and learning. What has brought attention to collaborative educational approaches is information and communication technologies that have connected the world and cost-effectively attenuated space and time. Individuals can remain in formal and informal contact long after the classroom experience. This holds the possibility to deepen the learning experience through sustained contact that allows individuals to share and test ideas. Previous to the Internet revolution and online learning, information was scarce and communication severely limited. This created the necessity for the face-to-face classroom, but ironically, meaningful communication was not enhanced appreciably. Communication was largely a one-way process which often made the quality of the academic engagement questionable.

Advances in information and communication technologies have drawn our attention to transactional conditions with regard to learning and have

raised serious questions about the nature and quality of the educational experience. New and emerging communication technologies open new transactional possibilities and raise questions about the implications of open and sustained communication. Enter awareness and interest in e-learning. When fully conceived e-learning is more than simply accessing information and connecting with others where and when it is convenient. There is the increasing realization that mediated interaction is not sufficient in and of itself for meaningful discourse. The distinguishing feature of e-learning is in connecting and collaborating with others in purposeful and meaningful ways. Moreover, it is becoming clear that thinking and learning collaboratively is a pragmatic reality and necessity in today's connected knowledge society. The interdependent social and economic demands of society necessitate that we learn to collaborate and collaborate to learn.

Thinking and learning collaboratively is an inherent human characteristic and central to our evolution. In fact, it has been shown that collaboration is linked to the origin of human intelligence and evolution (Wilson, 2012). The human instinct is to collaborate. The reason is the strength of the group over the individual. While individual self-interest certainly exists, there is also a genetic need to belong and collaborate that has been the central feature of human achievement. However, maintaining a healthy balance of the success of the individual and the group is key to continuous learning and growth. Sport teams are perhaps the clearest example of where the individual gets personal satisfaction by collaboratively supporting others and, thereby, contributing to the success of the team. There is an inherent feeling of justice when a win-win outcome can be achieved within the group. The individual interests and the common good become one—the ultimate social form and means for success.

Thinking and learning collaboratively is fundamental to human nature if not always the educational norm. To learn independently is genetically abnormal. The normal functioning of the brain is social, which is why it is so effective and satisfying to learn collaboratively. We need each other to learn in meaningful and worthwhile ways. Interpersonal relationships are the greatest influence on our thinking and learning. This is in contrast to the fallacy of the isolated creative thinker. Thinking and learning is not a private experience. It is dependent upon open communication. We don't know what we don't know until we are confronted with conflicting facts and arguments. Critical thinking really emerges through iterative discourse and reflection – each reinforcing the other. Ideas do not emerge from a vacuum. Ideas are advanced when they are shared with others and exposed to alternative perspectives and explanations. We must approach existing beliefs and new ideas with skepticism which sets the stage to question ourselves and others. This then allows us to actively and collaboratively consider alternate hypotheses that are open to testing.

Collaborative thinking and learning in a purposeful community of learners creates an environment where participants can explore and examine ideas

while challenging personal biases. However, we must not underestimate the ability of individuals to reinforce existing beliefs by selectively filtering information and trusting unfounded intuition. In general, humans are not particularly rational and reflective. Too often we rely on quick intuitive thinking that includes cognitive bias, unrepresentative personal experience, preference to maintain status quo and peer pressure (Thaler & Sunstein, 2008). There is a legitimate role for intuition when followed by reflective and rational thinking. Intuition not followed by rational reflection is wishful thinking disguised as grounded intuition—this is simply delusional. As we shall see in chapter five, practical inquiry accounts for intuition and insight as part of a process of thinking and learning rationally through reflection and discourse.

This inherent human bias to confirm widely held ideas creates a cognitive straightjacket if we do not engage in critical discourse that considers alternative perspectives. Educators must create the conditions that encourage diversity of thought by breaking down intellectual boundaries and barriers. Being exposed to multidisciplinary perspectives and ideas will cause individuals to pause and reflect. Learners need to be challenged if they are to move out of their intellectual comfort zone. Personal reflection without critical feedback and diagnosis of misconceptions is subject to simply confirming existing beliefs. Being exposed to a diversity of thinking and opportunities to engage in thoughtful discourse is central to the process of inquiry and deep and meaningful thinking and learning. One of the great dangers in deep and meaningful thinking and learning is a false sense of certainty by confining thinking to a particular set of unexamined assumptions and framework. With paradigmatic certainty comes a disregard of alternative ideas and innovative thinking. All ideas must be seen as transitory/tentative, only waiting for improvement or being proven wrong.

Consistent with previous discussion, human evolution clearly favoured cooperation and collaboration over competition. However, competition (self-interest) can and does occur in a sphere of cooperation and collaboration if we provide opportunities to express disagreement and consider alternative perspectives through constructive discourse. Discourse is a good example for the fusion of collaboration and competition, but constructive discourse requires a delicate balance between competition and collaboration. As much as collaboration and competition tension can be constructive, without an open and trusting environment we undermine collaboration. Competition must emerge in the process of exploring and challenging assumptions and ideas and not be perceived as personally challenging. The only way to make this happen is a climate that encourages and supports curiosity through open communication where learners feel safe to share thoughts, critically explore connections, challenge perspectives and resolve dilemmas. This is where leadership is required to encourage and support cognitive engagement.

With regard to context and climate, we must be clear that social media is primarily what it states—social communication. The social nature of this

form of communication can create barriers to deep and meaningful thinking and learning that is predicated upon critical discourse and respectfully challenging assumptions and ideas. Social media are characterized by weak interpersonal connections and content that is not intended for deep and meaningful exploration. Social media content is intended for consumption and entertainment—not for critical analysis. Social media are susceptible to “group-think” where participants follow the mindless mantra of the group (Garrison, 2016). This lack of critical discourse is a form of non-thinking. In other words, “group pressure to conform are major barriers to thinking collaboratively” (Garrison, 2016, p. 112). So the question becomes how can thinking and learning be distributed across a group such that it can overcome the risks of individual confirmation bias and the pressures of group-think?

Skepticism is necessitated by the uncertainty and randomness in all aspects of social existence (Mlodinow, 2008). Uncertainty can cause individuals to make poor judgements without the discipline of critical and collaborative thinking. To avoid and overcome misconceptions requires both personal reflection and shared discourse to create a questioning mindset and openness to external challenge. Too much emphasis on acquiring information can create an over-confidence and a false sense of certainty that prematurely shuts down thinking. In this way, intuition can also be a source of false confidence. While intuition can be a source of inspiration, it must be tested with rigorous inquiry and a skeptical mind. Similarly, emotion can be a great motivating force and even essential in making decisions but it can also be a source of irrationality unless accompanied by healthy skepticism and sense of uncertainty.

Conventional educational approaches have largely treated thinking and learning as an individual activity. While thinking collaboratively to many may seem counterintuitive (thinking is an internal cognitive experience), it is essential if we are to critically examine our thoughts and beliefs. The path to deep and meaningful thinking and learning is through practical inquiry as advocated by Dewey (1933); a process based on a generalized form of the scientific method and embedded in a purposeful community of learners. Thinking and learning collaboratively is the essence of a sustained community of inquiry made practicable by the affordances of e-learning.

## A Transactional View

While knowledge is a social artifact and learning in an educational context is a social endeavor, it is ultimately the individual who must grasp its meaning and put it to the test through discourse and application. As important as the group is, we cannot defer to the group in terms of critical and creative thinking. Thinking and learning collaboratively does not diminish the ultimate responsibility of the individual learner to reflect and consider possible misconceptions. Notwithstanding individual cognitive

responsibilities, we cannot separate the cognitive dynamic of the individual and the influences of the group or community. This is consistent with Dewey's (1933) view that we cannot separate the world of ideas from the world of experience. The purposeful process of facilitating an outcome that is both socially worthwhile and personally meaningful goes to the heart of the teaching and learning transaction. This transaction is common to all educational experiences, including e-learning.

An educational experience has a dual purpose. The first is to construct personal meaning through reconstruction of experience. The second is to refine meaning and confirm understanding collaboratively within a community of learners. At first glance, this dual purpose would seem to reflect, respectively, the distinct perspectives of the student focused primarily on constructing personal meaning and the teacher who has the responsibility to confirm understanding. Thinking and learning is shared and shaped through the dynamic of a community of learners (Garrison, 2013). However, closer consideration of this transaction reveals the inseparability of traditional educational roles and the importance of viewing the educational process as a unified transaction. That is, teachers are learners and learners are teachers. We are simply viewing the same process from two different perspectives. They both are responsible for constructing meaning and collaboratively confirming understanding. This perspective raises fundamental questions concerning issues of responsibility for learning and control of the educational process.

## **Responsibility and Control**

In an educational transaction, issues of responsibility and control apply to both teaching and learning. The responsibilities of the teacher are complex in that they have a special role in creating and shaping the evolving learning environment. This responsibility becomes more daunting and focused on the educator when communication technologies are introduced. These technologies make possible sustainable cognitive and social conditions where students can stay connected to a learning community. This demands subject matter as well as pedagogical and technological expertise on the part of the educator. On the other hand, the learner must accept responsibility for constructing personal meaning. For this to be successful, control must be commensurate with the abilities of the learner. The complex collaborative nature of an educational transaction should be apparent.

The point is that issues of control apply to both teaching and learning. As Dewey stated clearly, education is fundamentally an interactive or transactional process. The challenges and confusion surrounding control issues go to the traditional normative role and leadership responsibility afforded the teacher. It is the teacher who has the initial responsibility to define the curriculum and design educational activities. Unfortunately, in traditional educational contexts there has been little opportunity for learner input or collaboration

in the planning process. That is, the learner has little influence in defining expected outcomes or the nature of the educational transaction. This creates the contradictory situation where the student is expected to assume responsibility for activities and an outcome over which they have little input or transactional control. This is a crucial issue considering “that a student’s perceived control over his or her academic performance is strongly predictive of academic achievement” (Yeh, 2009, p. 229). In other words, responsibility with control reinforces effort and engagement.

This transactional perspective on teaching and learning reflects a dynamic balance of responsibility and control issues congruent with the educational purpose and the abilities of the learners. The access and sustained connectivity of e-learning draws attention to the issues of responsibility and control. Understanding the implications that e-learning information and communication technologies are having on educational transactions is the subject of subsequent chapters.

## Theoretical Concepts

One way to understanding worthwhile educational practices is to work back from desired learning outcomes. In higher education, these outcomes are first associated with higher-order cognitive processes (i.e. critical and creative thinking and learning) and not with specific content acquisitions. More recently, abilities such as metacognition have also been added to reflect the important ability and disposition to continue to learn in deep and meaningful ways. These abilities and dispositions (critical thinking and metacognition) must be developed if students are to assume increasing responsibility for their learning in a constantly changing knowledge society and economy.

The impermanence of public knowledge, along with the personal challenge of accommodating new ideas, necessitates an ability to think critically and be able to monitor and manage higher-order thinking and learning. Critical thinking is a holistic activity incorporating both reflective and shared activities. Moreover, it is argued here that the most productive environment for critical and creative thinking and learning is “the pedagogy of the ‘community of inquiry’” (Lipman, 2003). Critical reflection and discourse is central to the Community of Inquiry (CoI) theoretical framework that shapes this book.

In a community of inquiry, critical reflection and discourse are inseparable and reciprocal. At the same time, it is necessary to clarify misconceptions as to the role of reflection and discourse in a community of inquiry. Discourse is more than casual conversation. It is the external manifestation of reflective thinking and learning and is central to inquiry and a collaborative constructivist approach to thinking and learning. However, discourse is a complex and multidimensional process. Burbules (1993) points this out when he describes four types of dialogue (i.e. discourse) for different orientations and purposes. The four types are conversation, inquiry, debate and instruction.

These dialogues overlap and all are present in an education transaction. As Burbules (1993) states, “a degree of flexibility and pluralism in dialogical approach is essential” (p. 129). There is a place and need at various times in a community of inquiry for a particular type of dialogue or discourse. For example, dialogue for conversation (feeling of trust, respect and concern) is directly associated with the need to create social presence. On the other hand, dialogue for inquiry and debate speak to cognitive presence dynamic and the exploratory and confirmatory aspects of the Practical Inquiry model (see Chapter 5). Dialogue for instructional purposes speaks to the teaching presence element of the CoI framework. The challenge is how we design and deliver educational experiences in an e-learning environment that integrates the four types of discourse through synchronous verbal and asynchronous written discourse.

## Approaches to Learning

The judgement of this author is that the most promising research and knowledge base for understanding the educational experience was pioneered by Marton (1988) (Marton & Saljo, 1976) and confirmed by Entwistle (Entwistle & Ramsden, 1983) among others (Biggs, 1987). In its simplest form, this research described two distinct levels of information processing or understanding: surface-level processing, where the student has a reproductive or rote conception of learning and a corresponding learning strategy; and deep-level processing, where the intention is to comprehend and order the significance of the information as well as integrate it with existing knowledge.

It is clear that this intentional approach to learning is greatly influenced by the learning environment. That is, learners adapt to the expectations and characteristics of the environment. The construct is that context strongly influences the strategies they adopt in approaching learning (Ramsden, 2003). A deep or surface approach to learning is a rational adaptation to contextual demands on the part of the student in order to successfully meet expectations. Ramsden (1988) argues that there are three domains that influence perception and subsequent approaches to learning—assessment, curriculum and teaching. There is, of course, considerable overlap among the domains.

Assessment (i.e. testing and grading) has a pervasive influence in shaping intentions and how students approach an educational experience. In fact, it may well be the most “critical situational influence on learning strategies” (Ramsden, 1988, p. 164). How students are assessed sends a very strong signal as to what is important and how they should approach learning. If the examination system is information recall, then students will, rationally, prepare for “recall of factual information to the detriment of a deeper level of understanding” (Marton & Saljo, 1976, p. 125). Obviously, the

overwhelming concern of the vast majority of students is to successfully pass the examination. In most cases, this is an overwhelming influence that shapes how students approach learning and ultimately have a significant impact on the quality of the learning experience. Therefore, assessment must be congruent with intended learning outcomes.

The second domain is associated with curriculum, in particular, workload or the quantity of material to be assimilated in a defined period of time. Regardless of the student's inherent preference or intelligence, excessive curriculum demands will encourage a surface approach to learning. With regard to content coverage "there is mounting evidence that less is more" (Lombardi, 2008, p. 4). It is not hard to see the negative influence on deep approaches to learning of excessive content assimilation demands on the student. The challenge facing students and teachers in the age of the Internet is that "the world of knowledge is overwhelming, a vast ocean, horizonless, plunging to impossible depths" (Achenbach, 1999, p. A23). With the increasing access to more and more information this challenge only increases. Learning must be designed to manage excessive content if we are to encourage deep and meaningful approaches to learning.

The third domain, teaching presence, directly addresses the challenges of assessment and information overload by clarifying and influencing deep approaches. The teacher has the greatest influence in creating and shaping the learning environment and learning outcomes. With the proliferation of knowledge and the access to information, a way must be charted and order provided if we are to create the conditions that encourage deep approaches to thinking and learning. This includes higher-order thinking and learning that includes critical and creative thinking along with metacognitive awareness. Perhaps the most pragmatic means is to establish a community of inquiry where students are encouraged and supported to develop the thinking and learning that will ensure deep and meaningful processes and outcomes.

The transactional perspective for effective teaching means moving beyond simple presentation methods. The transmission or presentational approach to teaching is highly prescriptive. This is best exemplified by the large lecture; or in traditional distance education, a mass produced independent study package. The presentational approach is a one-way transmission of information, be it by lecture or independent study materials. Effective presentation depends on organization, clarity and enthusiasm but this has not been shown to be sufficient in and of themselves to encourage or support deep approaches to learning.

As implied in the phrase itself, the missing element in a presentation approach is critical discourse that is central to the transactional perspective and a community of inquiry. A transactional approach to teaching is based on the ideal of a critical community of learners. A transactional approach is balanced with flexibility regarding content, a supportive climate, and an opportunity to critically and collaboratively explore ideas and construct

knowledge. The transactional nature of a deep and meaningful approach allows student participation in setting goals, selecting content and methods of assessment, and collaboratively confirming understanding. This demands considerable educational judgment in terms of issues of responsibility and control.

Success in creating an educational community of inquiry requires preparation, sustained presence and considerable pedagogic and content expertise. As we shall see, this kind of teaching presence will ensure the full participation of learners and the achievement of deep approaches to learning, regardless whether communication is face-to-face or mediated. However, in an e-learning context, there are exogenous technical variables that also must be considered in concert with these principles if we are to create and sustain an online or blended community of inquiry. Particular communications technology characteristics must be understood as they provide practical constraints in terms of creating and sustaining a community of inquiry.

### Text-Based Communication

It is only in recent decades that linguists and members of other disciplines dealing with language have regarded speech as clearly the primary form of human language. Writing was seen as the direct transfer of the information conveyed by speech into a visible medium. This equivalency assumption is beginning to be considered more closely, particularly within the body of literature on the use of text-based, computer-mediated communication for educational purposes (Feenberg, 1999; Garrison, 1997; Garrison, Anderson & Archer, 2000; Peters, 2000).

We argue that the differences between spoken and written communication are, in fact, a key to understanding the effective use of mediated communication and, specifically, e-learning and communities of inquiry (Archer, Garrison & Anderson, 1999). While e-learning is dependent upon mediated communication, serious questions have been raised concerning the extent and degree to which text-based communication alters the "flow and structure" of educational discourse, as compared to the more familiar environment of speech-based communication. A full discussion of the characteristics of text-based communication will not be attempted here; however, we note that there is sufficient evidence to suggest that writing has some inherent and demonstrable advantages over speech in terms of critical discourse and reflection. One obvious advantage is the permanent record afforded learners. This contrasts with the ephemeral nature of discussions in face-to-face classroom environments. Furthermore, face-to-face conversation is generally less systematic, more exploratory, and less attentive to others' views.

Writing has long been used as both a process and product of rigorous critical thinking. The written word serves best to mediate recall and reflection, while the spoken word functions most effectively to mediate action (Wells,

2000). Ong (1982) argues that speech is a context which all humans are born into and that speech is critical to the development of individual consciousness; however, “writing intensifies the sense of self and fosters more conscious interaction between persons” (p. 179). The characteristics of written, as compared to spoken, language would appear to affect the value of the former in facilitating deep and meaningful learning. This, of course, has a particular application in text-based media.

The apparent advantage of the written word in higher-order learning is supported in a study of questioning and cognitive functioning. It was found “that interaction in this on-line context was more intellectually demanding than that found in face-to-face” (Blanchette, 2001, p. 48). That is, the questions and responses were at a higher cognitive level than in a face-to-face verbal context. A possible (and probable) explanation is the asynchronous nature of written communication. It would appear that because students have more time to reflect, to be more explicit, and to order the importance of issues, teachers were able to conduct high-level questioning. Also, in an online written environment, administrative questions and issues can be separated from academic discourse. That is, students could focus and reflect on higher-order cognitive questions and their responses.

This increased academic focus resulting from a separation of tasks introduces the issue of cognitive load. It is argued that cognitive load can be reduced by shifting from verbally transmitting information to providing information through written communication. This represents a move away from “transient” information communicated verbally and allowing the learner to focus on the task using permanently recorded information. This has been referred to as the modality effect which reduces cognitive load and facilitates learning “when the instructional procedure reduces extraneous working memory load” (Sweller, 2016, p. 7). While there is a place for transient verbal communication as we shall see in chapter eight, there can be clear advantages for written communication with regard to complex academic challenges.

At the same time text-based communication does not have the advantages of non-verbal cues available in face-to-face environments. Potentially this raises social presence challenges in online learning environments. Communities of inquiry are highly dependent upon establishing trust and group cohesion through communication that does not have the non-verbal visual cues. However, it has been repeatedly shown that social-emotional and personality characteristics can be projected through written communication. Characteristics of oral discourse can be represented in written communication through the use of linguistics and paralinguistic signals. In this regard, Gutiérrez-Santiuste and Gallego-Arrufat (2016) have shown that the use of “emoticons can lend support, complement written communication, and facilitate social presence in virtual learning environments” (p. 2). The conclusion here is that written communication can create a collaborative learning environment and meaningful discourse.

Written communication has always been the preferred means of storing and sharing knowledge. This form of communication is central to e-learning and its use can only strengthen the educational experience through sustained online discourse and reflection. In short, text-based communication has considerable potential to facilitate critical discourse and reflection. There is every reason to believe that text-based communication in an e-learning context would have advantages to support collaborative approaches to thinking and learning. The importance of written communication in e-learning has begun to assert itself in higher education and offer new and more effective collaborative educational experiences.

## Conclusion

The information age and a networked world have forced educators to rethink educational approaches. It has become clear that the need in a connected knowledge based society will be an environment that develops and encourages the ability to think and learn collaboratively (Garrison, 2016). The inevitable evolution of higher education capitalizing on the potential of e-learning in terms of collaborative approaches to thinking and learning is also a call for a rededication to traditional higher education ideals. These ideals are being brought back through the technological developments associated with e-learning.

Educators are particularly challenged when information and communication technologies are inserted into the equation. The reality is that “digital technologies [e-learning] require radically new and different notions of pedagogy” (Privateer, 1999, p. 70). In this regard, e-learning is altering the nature of the educational transaction by challenging the effectiveness of large and passive lectures. Educators are recognizing that e-learning is a disruptive technology that is currently transforming how learning is approached in an educational context. E-learning becomes an opportunity to examine and realize the ideals of the educational transaction in terms of collaborative and sustained thinking and learning.

It is the potential of e-learning to support and sustain learning communities to which we turn our attention. The challenge is to understand how we create and sustain communities of inquiry that will facilitate developing deep and meaningful approaches to learning. The transactional perspective of e-learning adopted here is embedded in a critical community of inquiry where both reflection and discourse are utilized to facilitate the construction of personally meaningful and socially valid knowledge. How to face the complexity and uncertainty in modern society can be best understood through a community of inquiry framework. It is to the CoI theoretical framework we turn our attention to next.

## Community of Inquiry

Realizing the potential of e-learning does not mean that traditional educational values and practices will be declared obsolete. In fact, because of online and blended learning capabilities to support asynchronous, collaborative communication in a dynamic and sustainable educational context, there is a resurgence of traditional educational ideals associated with rational discourse. Re-valuing the ideal of a community of learners engaged in critical thinking and discourse is at the heart of the e-learning transformation. The framework we describe here is based upon the premise (supported by research and experience) that a community of learners is an essential element of a deep and meaningful educational experience. The necessity of a community of learners becomes apparent with the demands of an evolving knowledge society that creates expectations for individuals to be independent thinkers and interdependent collaborative learners. It is within such a community of learners that the potential of e-learning is fully realized.

However, it is communication technologies that make possible sustainable communities of learners. It is the technological infrastructure that makes possible sustained access to learning communities. The challenge is to use e-learning in ways that support new and more effective collaborative approaches to learning that engages learners in purposeful and meaningful discourse. The technology of online and blended learning has the capability to support and sustain private reflection and public discourse simultaneously. This unprecedented capability has created e-learning approaches that are fundamentally changing teaching and learning in all contexts. The potential of e-learning is found in the framework of an open and critical community of inquiry.

### A Theoretical Framework

From both theoretical and empirical perspectives, the effectiveness of thinking and learning collaboratively is seen as indispensable in achieving deep and meaningful learning outcomes. The basic premise is that “the teaching of high-level concepts inevitably involves a considerable amount of discourse”

(Bereiter, 1992, p. 352). Research in both face-to-face and mediated educational environments confirm the benefits of thinking and engaging collaboratively in the support of deep and meaningful learning experiences (Cecez-Kecmanovic & Webb 2000; Garrison, 2016; Garrison & Archer, 2000; Johnson & Johnson, 2009). With the advances in information and communication technologies and the adoption of collaborative approaches to thinking and learning, we gain a deeper understanding of worthwhile educational experiences in highly connected knowledge societies.

A community of learners is composed of participants who assume the roles of both teacher and learner while engaging in discourse with the specific purposes of facilitating inquiry, constructing meaning, and validating understanding that in turn metacognitively develop the ability and predisposition for further learning. Learning communities provide the means to integrate personal reflection and shared discourse. It is the fusion of reflection and discourse that ignites a deep and meaningful educational experience that has personal value and socially worthwhile outcomes. Education is a purposeful and guided activity in which the individual is making sense of societal knowledge and reconciling this with personal experiences. The learning community is the ideal fusion of individual and shared worlds.

From the perspective of a learning community, online and blended learning must be judged from the perspective of the transaction between and among educator and learners. The success depends on the ability to create and sustain learning environments that engages learners in meaningful and worthwhile learning activities. It is counterproductive to artificially polarize teacher and student roles and responsibilities. Roles must be shared with a shifting balance as needs change throughout a dynamic and collaborative educational experience. In this regard, learning communities are no more inherently learner-centered than traditional face-to-face learning is inherently teacher-centered. To capitalize on the possibilities of online and blended learning, this discrete depiction of roles must be rejected and the unity of learning communities adopted.

We have previously alluded to the importance of context and specifically argued for the creation of a community of learners to facilitate critical discourse and reflection. For this reason, we emphasize that individual knowledge construction is very much shaped by the social environment. That is, an environment with choice and a diversity of perspectives that will encourage critical reflection and inquiry. Dewey (1933) considered such an environment for reflection and inquiry as indispensable for a worthwhile education transaction. Lipman (2003) popularized the term “community of inquiry” to describe an educational experience. Lipman (2003) argued for the community of inquiry to operationalize critical or reflective thinking as an educational methodology. This is a community where societal knowledge is revealed in an equivocal, multidisciplinary manner whose goal is to structure relationships (create order) to facilitate “rationality tempered by judgment”

(Lipman, 2003, p. 11). Citing Dewey, Lipman (2003) notes the great mistake of mainstream education is “to neglect the process and fixate upon the product” (p. 20). A community of inquiry is crucial in precipitating and maintaining reflection and discourse and the development of judgment in constructing and testing meaning. Inquiry is the process of actively searching for personal meaning and shared understanding. With the collaboration of the group, the individual assumes responsibility to construct meaning but to collaboratively confirm shared understanding.

In a community of inquiry, there is both rationality and freedom. Lipman (2003) states, a community of inquiry is where “students listen to one another with respect, build on one another’s ideas, challenge one another to supply reasons for otherwise unsupported opinions, assist each other in drawing inferences from what has been said, and seek to identify one another’s assumptions” (p. 20). In other words, a community of inquiry provides the environment in which students can take responsibility and control of their learning by negotiating meaning, diagnosing misconceptions, and challenging accepted beliefs. As Schrage (1989) notes, creating a shared understanding is simply a different task than exchanging information. It’s the difference between being deeply involved in a conversation and lecturing to a group (p. 5).

## The Community of Inquiry Framework

The Community of Inquiry (CoI) theoretical framework is a generic and coherent structure of a transactional educational experience whose core function is to manage and monitor the dynamic for thinking and learning collaboratively. The CoI framework has received broad empirical support in the literature (Akyol, Ice, Garrison & Mitchell, 2010; Arbaugh, Cleveland-Innes, Diaz, Garrison, Ice, Richardson, Shea & Swan, 2008; Diaz, Swan, Ice & Kupczynski, 2010; Garrison, Cleveland-Innes & Fung, 2010; Shea & Bidjerano, 2009a). This was reinforced in a study that explored current trends in the seven leading distance and online learning journals (Bozkurt, Akgun-Ozbek, Yilmazel, Erdogan, Ucar, Guler, Sezgin, Karadeniz, Sen-Ersoy, Goksel-Canbek, Dincer, Ari & Aydin, 2015). Descriptive analysis of publications during the period of 2009 to 2013 revealed the most frequently used theoretical perspective was the community of inquiry theory of knowledge formation. The same study also reported the CoI seminal article (by Garrison, Anderson & Archer, 2000) as the most cited in the studies of this period. This is evidence of the popularity and influence that the CoI framework has and is having with regard to e-learning.

More specifically, the CoI framework establishes procedures for critical inquiry and the collaborative construction of personal meaningful and shared understanding. It represents a process of designing and delivering deep and meaningful learning experiences through the development of three interdependent elements—social presence, cognitive presence and teaching

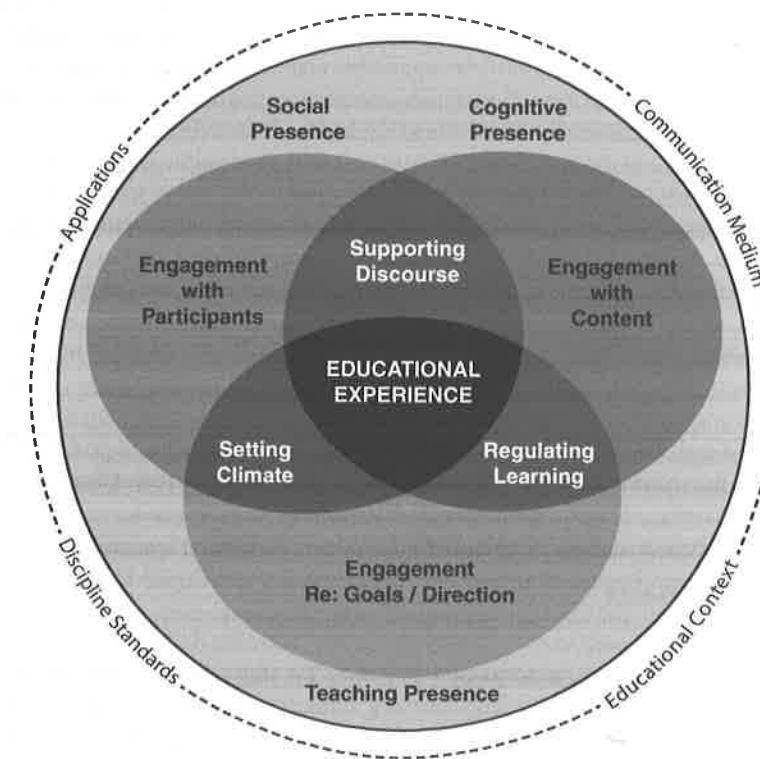


Figure 3.1 Community of Inquiry Framework

presence. These presences create a sense of being or identity through purposeful communication and distributed teaching and learning responsibilities. To begin to understand the complexities of a community of inquiry we begin with a brief description of each presence. The structural relationships among the three presences are provided in Figure 3.1. However, more detailed analyses of the presences and discussion of the complex dynamics is found in subsequent chapters.

### Social Presence

Social presence is the ability of participants to identify with a group, communicate openly in a trusting environment, and develop personal and affective relationships progressively by way of projecting their individual personalities (Garrison, 2009b). However, when the communication medium is the written word, establishing social presence presents a particular challenge. The shift from spoken communication to written communication in an online learning

environment presents a special challenge to establish social presence. Written communication lacks a sense of immediacy that builds interpersonal relationships. Immediacy is important to a supportive and secure learning environment as it reduces personal risk and increases acceptance, particularly during critical discourse that purposefully questions ideas and understanding.

Socio-emotional communication in text-based communication is possible through the use of compensating strategies, such as the adaptation of textual behaviors to reveal social and relational messages and paralinguistic signals (Gutiérrez-Santiuste & Gallego-Arrufat, *in press*; Walther, 1992). Compensating redundancies benefit communication that carries potential for misunderstanding. Attention must be given to establishing and sustaining appropriate social presence if the full potential of a community of inquiry is to be realized. Not only is acquiring higher-order learning more successful when cooperatively based (Resnick, 1987), cognitive presence is also enhanced and sustained when social presence is established (Akyol & Garrison, 2011a; Fabro and Garrison, 1998; Gunawardena, 1995; Gutiérrez-Santiuste & Gallego-Arrufat, 2016; Liu, Gomez & Yen, 2009).

### **Cognitive Presence**

Education is a formally constructed type of social learning defined by the specific parameters of purpose, process and product. To this end, cognitive presence speaks to intent, transaction and learning outcomes. In this regard, cognitive presence is defined generally “as the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry” (Garrison, Anderson & Archer, 2001, p. 11). Reflection is consistent with the ability to think critically (rational judgement) while discourse relies on trust, purposeful relationships and communication focused on understanding a dilemma or problem. In essence, cognitive presence is a condition of higher-order thinking and learning focused on critical reflection and discourse.

Cognitive presence is described in the context of a general model of critical thinking and scientific inquiry. The primary source for this model is Garrison and Archer (2000) but is derivative of Dewey’s (1933) work on reflective thinking. Cognitive presence is operationalized by the Practical Inquiry (PI) model that consists of four phases of inquiry—triggering event, exploration, integration and resolution. The PI model represents a generic structure of critical inquiry that operationalizes the inseparability of reflection and discourse and the multi-phased process designed to collaboratively construct meaning and confirm understanding.

### **Teaching Presence**

The third mutually reinforcing element in a community of inquiry is teacher presence. The need for leadership became immediately apparent in the early

applications of online learning using computer conferencing. The main difficulty with early computer conferencing was sustaining participation and critical discourse (Gunawardena, 1991; Hiltz & Turoff, 1993). Low levels of interest and participation were rooted in a lack of structure and focus resulting from its informal nature and excessively “democratic” approach. While there must be full and open participation in a community of inquiry, there is also an inherent need for an architect and facilitator to design, direct and inform the transaction if it is to be productive and sustainable.

Considering the previous issues, teaching presence is defined as “the design, facilitation and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes” (Anderson, Rourke, Garrison & Archer, 2001). The function of teaching presence is to bring the elements of a community of inquiry together in a balanced and functional relationship congruent with the intended outcomes while respecting the needs and encouraging active engagement of the learners. It must be noted here that teachING and not teachER presence is used to reflect the shared roles and responsibilities of a community of inquiry (see next section). This is, of course, an enormously imposing task and presents new challenges associated with e-learning approaches.

### **Indicators**

For theoretical and practical purposes, a template has been constructed consisting of categories of indicators within each of the three presences that reflect meaningful learning activities. Indicators are key words or phrases that suggest the presence of the three elements. Table 3.1 provides the template that guides our assessment of the nature and quality of a community of inquiry learning experience. These indicators have been used to identify presences and guide the coding of transcripts in the early stages of this research. The template and qualitative coding has been enormously useful in gauging and understanding the dynamics of a community of inquiry. Moreover, this template was crucial in the development and validation of a quantitative survey instrument (see Appendix A).

### **Theoretical Developments**

The CoI framework has been demonstrated to be a credible and prominent theory that has guided numerous online and blended learning studies (Befus, 2016). In this regard it has been noted that the CoI framework “has formed a theoretical backbone for much of blended and distance learning research” (Halverson, Graham, Spring, Drysdale & Jeffery, 2012, p. 393). The primary reason for its widespread adoption is that prior to its publication, few

**Table 3.1** Community of Inquiry Categories and Indicators

<i>Elements</i>	<i>Categories</i>	<i>Indicators (examples only)</i>
Social presence	Personal/affective	Self projection/expressing emotions
	Open communication	Learning climate/risk-free expression
	Group cohesion	Group identity/collaboration
Cognitive presence	Triggering event	Sense of puzzlement
	Exploration	Information exchange
	Integration	Connecting ideas
	Resolution	Appling new ideas
Teaching presence	Design and organization	Setting curriculum and methods
	Facilitating discourse	Shaping constructive exchange
	Direct instruction	Focusing and resolving issues

e-learning studies were grounded in a coherent theoretical framework that addressed a range of e-learning contexts (Zawacki-Richter & Anderson, 2014). A major advantage of grounding research in a comprehensive theoretical framework is to ensure that the learning experience is not defined by the technology. Ultimately, the potential of new and emerging technologies must be judged by the educational transaction and intended learning outcomes. Educationally, the CoI framework focuses on the active and creative engagement of learners to think and learn collaboratively.

The CoI framework was first proposed in an article by Garrison, Anderson and Archer (2000). The original framework was grounded in the higher education teaching and learning literature, a series of seminal studies, and the educational experiences of the research team. Since its inception, the CoI framework has been referenced in hundreds of publications and is the leading theoretical reference point for research in online and blended learning (Befus, 2016). More importantly, studies have consistently demonstrated the stability of the CoI framework and evidence supports the position that collaborative inquiry can be supported in e-learning contexts (Garrison, 2016; Garrison & Arbaugh, 2007). In fact, considering the reflective and explicit nature of the communication, as well as the opportunity to access data sources, there are distinct advantages to creating a community of inquiry in online and blended learning environments. The permanence of text-based communication lends itself to reflection and the ability to challenge thoughts as well as edit text and rewrite positions.

Early validation research created the groundwork to construct a quantitative CoI survey instrument (Arbaugh et al., 2008). Data analysis based on this instrument concluded “that a three factor solution emerged regardless of the underlying socio-epistemological orientation” (Akyol et al., 2010, p. 67). Similarly, another study that used the CoI survey questionnaire concluded, “factor analysis of multiplicative scores [course and importance ratings] ... supported the CoI model’s tripartite structure” (Diaz et al. 2010, p. 22). More recently and consistent with previous research, a study concluded that the CoI scale was “found to be reliable and valid by the means of Classical Test Theory and Item Response Theory” (Horzum & Uyanik, 2015, p. 206). This supports the CoI questionnaire as a valid instrument that can quantitatively assess the state of a community of inquiry (see Appendix A).

Research using this instrument has consistently confirmed the CoI framework and provided new insights. The CoI instrument has opened up the study of online and blended learning in general and specifically the theoretical structure and dynamics of a community of inquiry. Such a quantitative instrument can be particularly efficient and effective in conducting large scale and multi-institutional studies. The CoI instrument also has a practical application in terms of guiding the development of course and program design as well as assessing the effectiveness of a community of inquiry (Richardson, Arbaugh, Cleveland-Innes, Ice, Swan & Garrison, 2012). It has also been noted that individual items provide design insights with regard to each of the presences and are useful in judging success of implementation (Ice, 2009; Richardson, Ice, Boston, Powell & Gibson, 2011).

It is important to appreciate that each individual in a collaborative constructivist community of inquiry manifests each of the presences. That is, participants must take responsibility for aspects of social, cognitive and teaching presence. The exact nature and the degree to which they assume responsibility for each of the presences will depend on the individual, task and context. To further complicate this dynamic, this balance will shift as the educational experience progresses (for example, students will be expected to assume increased teaching presence as their inquiry ability develops). However, it should be kept in mind that there is no “learner” presence or “teacher” presence per se. Each participant (teacher and students) assume varying degrees of teaching presence (notwithstanding that the instructor will generally exhibit greater teaching presence at various times). The goal is always to have students assume more teaching presence and become increasingly responsible to construct meaning and confirm understanding. Individually and collaboratively, students will assume increasing cognitive responsibility as they become more competent and confident. As well, through shared metacognitive awareness, students will learn to guide purposeful discourse within an environment of trust, communication and cohesion (social presence).

An important development in CoI research was the study of the dynamic relationships among the presences. Understanding the dynamics of a

community of inquiry helps to understand the development of the learning community as a whole. While the CoI framework was intended to describe the interdependent and dynamic nature of the presences, much of the early work was focused on defining the structure of the presences. However, learning experiences are a function of the evolving relationships among the presences. The interdependency of the presences has been supported by several studies (Arbaugh, 2008; Bangert, 2009; Garrison et al., 2010; Ke, 2010; Nagel & Kotze, 2010; Shea & Bidjerano, 2009b). Taking this a step further, we see that the presences evolve in concert which reveals the developmental nature of a community of inquiry. In this regard, Akyol and Garrison (2008) found that the presences evolved over time as hypothesized by the CoI theoretical framework. That is, social presence was dominant at the beginning of a course but dropped over time. On the other hand, both cognitive and teaching presence increased gradually throughout the course as would be expected with increased focus on academic requirements and outcomes.

The interdependency of the presences was also demonstrated in two seminal studies that explored the causal relationships among the social, cognitive and teaching presences (Garrison et al., 2010; Shea & Bidjerano, 2009b). In addition, other studies have confirmed the important mediating role of social presence (Gutiérrez-Santiuste, Sabiote-Rodríguez & Gallego-Arrufat, unpublished) and revealed the key role of teaching presence to establish both social and cognitive presence (Archibald, 2010; Daspit & D'Souza, 2012; Joo, Lim & Kim, 2011; Ke, 2010). Kozan and Richardson (2014) have extended this area of study by exploring between presence relationships (focus on each pair of presences) while controlling for the third presence. They concluded, “efforts to increase social presence should not only focus on social interaction but also on encouraging cognitive presence through social interaction” (p. 72). This suggests that participants identify first with academic goals, and social presence must be directed to academic activities (i.e. cognitive presence) and not solely interpersonal relationships.

Another development with regard to the dynamics of the presences is the internal dynamics among the categories of each of the presences. Here it was found that the intra-presence dynamics evolved as theoretically hypothesized (Akyol & Garrison, 2008). For example, with regard to social presence, open communication received greater attention at the outset but gave way to group cohesion as the course evolved. This also held for cognitive presence as activity shifted through each phase of inquiry. However, it was important to note that the final phase responses (resolution) diminished since the assignment was to be submitted individually. Teaching presence categories were clearly distinguishable and revealed the expected change in emphasis from facilitation to direct instruction as students required specific input regarding content and expectations. Among the presences as a whole, it was also revealed that social presence declined over time as cognitive and teaching presence increased.

While most studies have confirmed the structure of the CoI framework, there have been arguments for adding other constructs. One study suggested included a fourth element, individual learner presence, to account for self-regulation (Shea, Hayes, Uzuner-Smith, Gozza-Cohen, Vickers & Bidjerano, 2014). The difficulty of this is that it fundamentally violates the premise of a community of inquiry and creates unnecessary complications. The premise that it violates is the requirement that participants function collaboratively and assume responsibilities as both teacher and student. The suggestion is also unnecessary in that the issue of regulation has been incorporated into the CoI framework through the shared metacognition construct that manifests itself primarily at the intersection of teaching and cognitive presence (Garrison & Akyol, 2015a; Garrison & Akyol, 2015b). Another suggested new construct was to add a distinct emotional presence (Cleveland-Innes & Campbell, 2012). The argument against this is similar to the previous suggestion. Notwithstanding the increased complexity of the framework this would create, the main point is that it is unnecessary as it is largely accounted for in the social presence construct that has a pervasive influence on all aspects of a community of inquiry.

The suggestion to add learner presence raises an important defining characteristic of the CoI framework—that it is a process model. Assigning roles to individuals based on their formal organizational status (e.g. instructor) would undermine the CoI as a collaborative constructivist process. A community of inquiry is about shared learning processes where individual responsibilities are shaped by the collaborative learning experience. Responsibilities are constantly shifting as learning progresses but a focus on individual roles introduces a rigidity that potentially limits participants assuming responsibility for the quality of the learning dynamic. For collaborative learning experiences, it is less of a question *who* than it is *how* ideas are being shared; the emphasis is on the process and responsibilities of collaborative inquiry. The emphasis on individual roles restricts students to take on roles and responsibilities that may have been arbitrarily reserved for the formal instructor typical of a traditional passive information dissemination approach. Ultimately, the focus on traditional roles will limit collaboration and create an artificial constraint on the depth of learning, metacognitive development of participants, and the prospects for continuous learning. In summary, adding a learner presence construct would undermine the premise of collaboration and severely complicate the CoI framework. If we are to preserve the collaborative constructivist premise of the CoI framework, care must be taken to preserve its integrity and parsimony.

Therefore, in a truly collaborative learning environment, it is contradictory to talk about teacher and learner presence with separate roles and responsibilities. Collaborative inquiry requires learners to develop shared metacognitive awareness through both self- and co-regulatory responsibilities. Self-regulation is a hold-over from conventional higher education

and traditional distance education enterprises where the independence of the learner is necessitated by delivery methods or access. The core transactional issue is sustained communication and collaboration regardless of physical separation or time shifting. In this regard, it is assumed “that the collaborative learning model should be the foundation upon which online courses are designed and delivered” and where it has been shown that students report significantly higher perceived learning and satisfaction in communities of inquiry (Arbaugh & Benbunan-Fich, 2006, p. 435). Furthermore, extending discourse and collaboration through an online community of inquiry has shown broader and deeper discussions and more effective outcomes (Warner, 2016).

## A Theory?

To begin, it is worthwhile to remind ourselves of the role of theory and its practical value. Theory shapes our view of the world and our behavior. It provides order that helps us make sense of complex situations and in turn creates effective plans to address challenges and solve problems. The goal, however, is that theory not be overly complex and that it conveys the essence of the phenomenon of interest. That is, it provides coherence with parsimony. Good theory has great practical value in that it helps us explain a phenomenon and predict outcomes with the minimum number of constituting elements. However, reaching the standard of robust theory is not only demanding to achieve but is constantly open to critique and attempts to invalidate. One framework that has had nearly 20 years of critical study is the CoI.

At this point of theoretical development, it is time to raise the question whether the CoI framework meets the requisites of a theory. In this regard, the CoI framework currently represents a coherent set of articulated elements and models describing the dynamics of a higher educational learning experience. However, to constitute a comprehensive theory, there must be other features present. Dubin (1978) suggests that in addition to units or elements there must be defined relationships (laws of interaction), boundaries that limit its relevance, and system states (how elements act differently in their relations). Once these basic features are in place, then propositions, empirical indicators and hypotheses can be derived. A theory is essential for interpreting the findings of empirical research and the possible refinement of the theory. Based on these criteria, we argue that these basic features of a theory are in place in the CoI framework. Moreover, it has been shown that the CoI framework has the ability to generate hypotheses and provide the theoretical context to interpret results from rigorous research. Therefore, it is argued that the CoI framework meets the test, at a minimum, of a nascent educational theory.

When the CoI framework was first proposed, what was lacking to be considered a complete theory was the detail and completeness of

explanation to understand the nature of the relationships among the presences and the development of the system as a whole to rigorously define the relationships and describe system states. In interpreting the data from the research over this last decade (to be discussed in subsequent chapters) it is clear that it has provided a parsimonious structure and the means to understand the complex and dynamic phenomenon of an educational experience. The number of research studies using the CoI framework has clearly indicated its usefulness to make propositions (predictions), generate hypotheses, make observations, empirically test these hypotheses, and provide explanations when interpreting the findings. A decade of research has provided empirical findings to describe the nature of the interactions among the presences as well as the dynamic balance of the CoI system over time. To this point, as we shall see in subsequent chapters, there is considerable evidence that the CoI framework does account for the complexity of an educational e-learning experience.

One final feature that needs further discussion is its boundary or area of application. The reason for mentioning this is that the CoI framework was first proposed to provide order to the complexities of studying and understanding computer conferencing and online learning. It has since been used to study blended learning (Garrison & Vaughan, 2008) and with this its implicit boundary has been expanded to include face-to-face learning environments. This should not be surprising since it was noted at its inception that it was a generic model generated from the general literature and experiences of the authors in traditional higher education (Garrison et al., 2000). The point is that the CoI framework could well be applied to face-to-face educational contexts (Archer, 2010) as well as K-12 (Borup, Graham & Drysdale, 2014; Stenbom, 2015). One other point with regard to boundaries is the perception of factors such as subject matter, student characteristics and technology that were considered exogenous variables in the original description. While these are worthy of study in terms of their relationship to the elements and dynamics of the CoI framework, they continue to be considered indirect variables for reasons of parsimony.

Considering the previous discussion and the theoretical state of the CoI framework, we propose it has evolved rapidly into a comprehensive educational theory. Its adequacy as a theory will be based on its coherence and explanatory power (i.e. logic) (Dubin, 1978). Considering the previous discussion, it would appear that the CoI framework possesses the features of a theory and has sufficient coherence and explanatory power to be considered a theory. However, its validity and usefulness as a theory will be judged by its adoption and the evidence generated to support it. Furthermore, in terms of its citation, the evidence would suggest it constitutes a theory. As a theory, the CoI provides the means to study and understand thinking and learning collaboratively in a community of inquiry. Therefore, we conclude that the CoI framework meets the criteria of what constitutes a theory (Dubin, 1978).

To be clear, much work remains to explore the explanatory power and completeness of the CoI theoretical framework. However, it would seem that it is closer to a comprehensive theory than it is to a framework. For this reason, we shift from the terminology of the CoI framework to the CoI theoretical framework. At the same time, it is clear that judgments of what constitutes a theory are based on complex arguments; so consistent with all scientific endeavors, in the final analysis it will be left to others to judge whether the CoI has reached, or how it might reach, the threshold of a theory.

## Conclusion

This chapter has outlined the concepts and elements needed to provide order and insight into understanding the complexities and potential of an e-learning experience. The CoI theoretical framework and its constituent elements have guided the theoretical and empirical investigation described in this book. The evidence suggests that it is the most prevalent and coherent theory in guiding the research and practice of online and blended learning and that it has enormous potential to design, implement, and assess e-learning approaches, strategies and techniques.

## Chapter 4

# Social Presence

The early adopters of e-learning immediately recognized its potential to support a collaborative learning experience. The obvious and immediate challenge, however, was to create a welcoming learning environment that would serve educational needs. This precipitated considerable discussion with regard to the misplaced goal of replicating a classroom experience. What was not fully appreciated was that creating a community of learners through an asynchronous text-based means of communication represented a qualitative shift from that of a real-time, verbal, face-to-face mode of communication. As such, the challenge of creating a community of learners in a medium that provides no interpersonal visual cues and is limited to words or images on a screen presented a unique challenge for educators.

## Re-thinking Social Presence

Community is integral to all aspects of life. Community represents a weaving of individual and group interests; the psychological and sociological; the reflective and the collaborative. This is no less so in terms of creating and sustaining a community of learners. The implicit denial of community has been the greatest shortcoming of traditional distance education with its focus on prescriptive course packages to be assimilated by the student in isolation. This was based upon the misconception that learning is largely an individual cognitive process. However, education is a collaborative experience, which includes a sense of belonging and acceptance in a group with common interests. As such, we must reflect upon what social presence means in an online learning community that is distinguished by the written word as the predominant mode of communication.

Asynchronous text-based communication would appear to present a special challenge in creating a social environment to support a purposeful community of inquiry. Communication theorists have drawn considerable attention to the lack of non-verbal communication cues that are considered to be crucial in forming collaborative relationships. Some time ago, Short, Williams, and Christie (1976) concluded a review of media studies by stating that the

"absence of the visual channel reduces the possibilities for expression of social-emotional material and decreases the information available about the other's self-image, attitudes, moods, and reactions" (p. 59). The authors focused on the medium of communication to argue that this presented a loss of intimacy. They used the term social presence to argue that mediated communication is a serious limiting factor to shared social presence. The question was whether this would be fatal to forming and sustaining a community of learners online? Does text-based communication provide the means to communicate social-emotional content necessary for building a social community, of feeling connected, and preventing a feeling of anomie? Or can teachers and students acquire and use compensating communication skills for quality collaborative learning experiences?

Doubts were raised about the hypothesized intimate connection of social presence to the characteristics of the medium. Gunawardena (1995) was instrumental in redefining social presence in terms of whether participants are perceived as "being real" (Gunawardena & Zittle, 1997, p. 8; Kim, 2011). This represented a shift from the technology to the communication characteristics in determining whether individuals are able to connect with each other socially and emotionally. The question was whether the nature of written language can compensate for the lack of visual cues such as body language and verbal intonation which has a profound effect on how a message is interpreted in a face-to-face environment. Or, alternatively, might this medium exhibit other characteristics or properties that provide an advantage to the less extraverted student and, overall, offer the potential for greater equality and participation?

In short, it has been shown that students can and do overcome the lack of non-verbal communication by establishing familiarity through the use of greetings, encouragement, paralinguistic emphasis (e.g. capitals, punctuation, emoticons) and personal vignettes (i.e. self-disclosure) (Garrison & Arbaugh, 2007; Rourke & Anderson, 2002). The fact that text-based communication is a relatively lean medium has been shown not to be a serious limitation. While the characteristics of a text-based medium may well have inherent social-emotional limitations, it does have compensatory advantages (reflective, explicit and permanent) in focusing and elevating the academic level of the exchange. That is, written communication may well be more effective for facilitating critical thinking and discourse.

The conclusion is that the apparent limitations of text-based online learning have the potential to offer advantages not possible in a face-to-face educational context. The leanness or richness of the medium will be defined by the task at hand and by the compensating opportunities the medium affords. With regard to the affordance of the medium, research conducted on text-based online learning has consistently demonstrated a capacity for a high level of interpersonal communication resulting in perceived satisfaction and learning (Garrison & Arbaugh, 2007; Kim, 2011). The exact nature of

the interpersonal communication will be shaped by the implicit understanding of the specific purpose of the community of inquiry.

It is argued that social presence is an important antecedent to collaboration and critical discourse. Establishing interpersonal relationships and a sense of belonging are important to an academic endeavor. Social presence does not mean supporting engagement for purely social purposes. In a community of inquiry students are expected to be skeptical or critical of ideas and expression must not be restricted for fear that they might damage a relationship. Social presence in an academic context means creating a climate that supports and encourages probing questions, skepticism and the contribution of explanatory ideas. Sustaining critical thinking and discourse requires a sense of purpose and social presence that must develop over time.

What sustains a dialogue over time is not only lively inter-change about the topic at hand, but a certain commitment to one's partner; a commitment that might not precede the dialogue, but arises only gradually in the spirit of the engagement.

(Burbules, 1993, p. 15)

A community of inquiry must be both inclusive and critical. It is through balancing these seemingly contradictory but complementary social and academic elements that a quality learning environment is created. This is where e-learning can be a very effective medium for supporting an intellectually challenging, yet respectful, community of inquiry.

Creating a purposeful learning community in a virtual, non-verbal environment that would support higher learning requires a new appreciation of social presence. Notwithstanding the importance of social presence for a functional community of inquiry, a key insight (not obvious at the outset) was that creating a cohesive community of learners could not be created based only on establishing social relationships. A cohesive and sustainable educational community was first established through common purpose and academic identity. However, this would not be functional or sustainable without a supportive collaborative environment that did not consider the social-emotional issues of the participants. A sense of belonging, open communication and cohesion are essential conditions for a community of learners.

The original Community of Inquiry (CoI) working definition of social presence was "the ability of participants in a community of inquiry to project themselves socially and emotionally, as 'real' people (i.e. their full personality), through the medium of communication being used" (Garrison et al., 2000, p. 94). The premise was that it is inconceivable to think that one could create community without some degree of social presence. The challenge, however, was to understand the nature of social presence in a purposeful community focused on academic inquiry that involved sustained critical discourse and cognitive presence. The point is that it is the explicit purpose

of social presence to support inquiry in the form of reflection and discourse. So the question is what does social presence look like in an academic collaborative online learning environment?

These insights were the beginning of important research into social presence and the catalyst for the development of the CoI framework. The CoI framework with its focus on purposeful academic goals expanded the definition of social presence to go beyond the affective dimension (Garrison, Anderson & Archer, 2000). To reflect a collaborative educational experience, the dimensions of open communication and group cohesion (identity) were included to the early preoccupation with social-emotional concerns. Additional nuances were also incorporated into the definition of social presence to better reflect identity with purposeful academic goals (Garrison, 2009b). This latter development is described in the next section.

In summary, social presence is largely responsible for setting the academic climate and is defined by three overlapping components—interpersonal/affective communication, open communication, and sustained group cohesion. All are directed to creating a climate for deep and meaningful approaches to learning through practical inquiry (cognitive presence). Therefore, setting climate is a process of creating the conditions for participants to feel sufficiently at ease to engage in meaningful discourse. In essence, it is creating a social-emotional climate for rich open communication (regardless of the medium of communication) that can build group cohesion for sustained collaborative inquiry. A recent study has highlighted the importance of social presence with regard to the richness and flexibility of communication that “co-occur with the cognitive and teaching aspects” of a community of inquiry (Gutiérrez-Santiuste & Gallego-Arrufat, *in press*). Social presence is concerned with connecting people through both personal and academic communication (open communication) that will build group cohesion and a commitment to purposeful inquiry.

## Evidence and Insights

While social presence concerns have attracted great interest from the beginning of computer conferencing and online learning, it is still open to further research. Much of the work on social presence was on the social-emotional component in isolation from the formal academic context. While emotion is clearly associated with intellectual activity, thinking and learning in a collaborative environment presents a complexity that requires consideration of other social-emotional dimensions. It was not until the development of social presence within the CoI framework that social presence moved from a largely affective construct to a more complex and dynamic element that included issues such as communication and cohesion. This was in recognition of the social context—that being a purposeful academic community of inquiry.

What precipitated the latest examination of the social presence construct was the research by Rogers and Lea (2005). They found that when there is shared social identity with the group, group cohesion is enhanced and the group will become more productive. More specifically, social presence is enhanced when individuals identify with the group *and its purpose* as opposed to connecting with specific individual members. Put another way:

Social presence was enabled through the emphasis on the shared social identity at the level of the collaborating group rather than the creation of interpersonal bonds between individual group members.

(Rogers & Lea, 2005, p. 156)

If this is the case, early in a course of studies emphasis should be placed on the dimensions of open communication and cohesion that are developed in the context of shared purpose and group identity. Climate and interpersonal relationships need to be given time to develop and not distract from the academic purpose of the course of studies.

Such a view of social presence is consistent with a formal educational environment where there is a purposeful community of inquiry and identifying with the goals is an important social-emotional factor that will shape attitudes and behavior. Social presence underpins collaborative inquiry and mediates cognitive and teaching presence. The primary reason students are there is to learn about a specific subject. The sense of group identity is then consistent with the dimensions of social presence—social-emotional commitment, open communication and group cohesion. Identification with the purpose of the group in an educational context has a strong influence on academic behavior. Interpersonal relationships will develop and should be encouraged to the degree that they do not conflict with group identity and the purpose of the community of inquiry.

This insight raises questions with regard to the effect of the social presence dimensions, in particular the affective dimension. Setting climate is more about a feeling of belonging to the group and less about connecting with others on a personal basis. The question is how much emphasis should be placed on affect (interpersonal identity) at the beginning of the course. Perhaps we need to re-examine the affective dimension from the perspective of group identity. Parenthetically, affective concerns were raised by Shea, Hayes, Vickers, Gozza-Cohen, Uzner, Mehta, Valachova and Rangan (2010) when they noted the difficulty of identifying indicators of affect and concluded that social presence is in need of additional specification.

The need to balance the personal and group (academic) identifications in the social presence construct has been supported in recent research. Kovanović, Joksimović, Gaševic and Hatala (2014) concluded that “students’ social presence develops mostly through interactions focused on learning” (conclusion). The authors argue that engaging students in an exchange of ideas

enhanced social presence and a sense of community while affective expressions did not directly contribute to discourse. Similarly, it has been demonstrated that social interactions are directed primarily for learning purposes (Kozan & Richardson, 2014). Another example supporting the importance of focusing on academic purpose is a study by Nippard and Murphy (2007) who found that expressions of social presence were of a digressive nature and often drew attention away from the delivery of the content. This last study supports other research in suggesting that if social presence exceeds a social-emotional threshold, it may well inhibit critical discourse (Caspi & Blau, 2008; Janssen, Erkens & Kirschner, 2012; Lee, 2014). Therefore, the evidence seems to support the position that participants identify first and foremost with the academic purpose of the group and personal relationships should evolve from these interactions.

Notwithstanding the importance of academic identification, the effect of emotions on regulating cognition and decision making is clear (Huntsinger & Ray, 2015; Van Kleef, De Dreu & Manstead, 2010, p. 46). What is less clear is what creates positive emotion and how emotion influences collaborative approaches to thinking and learning. The conclusion of Van Kleef et al., (2010) is that “the structure of the social situation serves as a fundamental moderator of the interpersonal effects of emotions” (p. 81). That is, the larger social context needs to be considered to assess best optimum emotional levels. Emotions play an important role in collaborative learning and the limited access to emotional cues in online environments identifies the need for further study. Development of emotional theory and awareness in online environments would lead to better understanding of emotion and more effective learning in online communities of inquiry (Daniels & Stupnisky, 2012).

Moreover, research on emotion suggests that emotions are associated with motivation and learning strategies which in turn affect academic achievement (Daniels & Stupnisky, 2012). In a summary of several studies on emotion in online learning environments, it was concluded that “there are few differences in emotions experienced in online learning environments relative to face-to-face classrooms” (Daniels & Stupnisky, 2012, p. 222). This may seem somewhat surprising considering the apparent lack of emotional cues and having to deal with the technology. However, greater responsibility appeared to be balanced with the positive sense of control. Regardless, as noted previously, understanding emotion calls for more theoretically based research that includes a clear definition of emotion. In this regard, we shift our focus to the dimensionality of social presence and the place of emotion.

Cleveland-Innes and Campbell (2012) studied emotion specific to online learning environments and concluded “that emotion and cognition are innately intertwined” (p. 271) but have been largely neglected. The authors state that one exception has been the CoI framework but argue for “an expanded role for emotional presence” (p. 272). Their approach was to expand the CoI questionnaire by adding emotional presence measures. Using

the results from a survey of 217 students from 19 courses, an exploratory factor analysis was conducted. Their preferred factor analytic solution, shaped by the additional emotional presence items and the hypothesized emotional presence construct, suggested a unique emotional presence factor.

The suggestion of a unique emotional presence element creates significant challenges and raises the question whether this is justified empirically and theoretically. It is argued here that the methodology and factor analytic interpretation is not sufficiently strong to make the argument for a fourth presence. While the emotional component of social presence needs to be explored, the Cleveland-Innes and Campbell (2012) factor analytic interpretation does not warrant challenging the confirmed structure of the CoI framework. What is evident is the need to better understand the pervasive role of emotion in an online and collaborative thinking and learning environment.

Emotion is an affective state that fluctuates with the social conditions and, therefore, is within the purview of social presence. With regard to Cleveland-Innes and Campbell's (2012) argument that a distinct emotional presence would ensure it is experienced “beyond the expression of social presence” (p. 282), it must be pointed out that the existing CoI framework already ensures the interdependence of the presences and that the emotional dimension of social presence influences cognitive and teaching presence. Social presence intersects with the other presences and, therefore, emotion is inherently pervasive as conceptualized in the existing social presence construct. The framework is consistent with emotion playing a key role in guiding judgement, cognition, and decision making. However, creating a distinct emotional presence element based on its pervasive influence is unnecessary and risks fragmenting the social presence construct and complicating the framework.

Emphasizing emotional influence is justifiable considering that, theoretically and empirically, social presence with its affective dimension has been shown to be a mediating influence on cognitive and teaching presence (Garrison, Cleveland-Innes & Fung, 2010; Shea & Bidjerano, 2009a). However, we must be cautious placing undue emphasis on emotion that would not be consistent with a purposeful academic environment (see Jahng, Nielsen & Chan, 2010). That said, there is no question as to the intimate connection emotion has to all aspects of a community of inquiry. It could be argued that emotion is the gravity of a community of inquiry in that it is pervasive, holds things together, plays an essential role in decision making, and is often the prime mover (volition). Clearly emotion and how it fits in the CoI framework needs to be explored and understood. The question is whether it is helpful to see emotion as emanating from social presence or as a distinct generalized environmental influence along with other exogenous factors such as student and contextual characteristics. Regardless, the social presence construct is open to refinement.

The social presence construct has been redefined as the ability of participants to identify with the group or course of study, communicate purposefully in a

trusting environment, and develop personal and affective relationships progressively by way of projecting their individual personalities (Garrison, 2009b). Although this is more of a refinement, the significant advantage is that this description better conveys the dynamic nature of the social presence construct in a purposeful and developing community of inquiry. That is, it places a priority on academic goals and communication within the community which leads to increased group cohesion. Through engagement in collaborative academic activities an academic climate develops and personal relationships grow naturally over time. In this way, personal relationships enhance and do not inhibit academic discourse and group identity (i.e. cohesion). Furthermore, the pattern of open communication (purposeful discourse) is set and personal sensitivities (i.e. a reluctance to criticize resulting from close relationships) are less likely to occur. As noted by Lea, Rogers and Postmes (2002, cited in Rogers & Lea, 2005), "environments rich in interpersonal information may, in fact, undermine group identity and result in process losses for the collaborating group" (p. 153).

This discussion of the natural progression of interpersonal relationships raises the important issue of the dynamic of social presence. Theoretically, it was predicted that open communication indicators will be high at the beginning of a community of inquiry and will diminish slightly over time with experience and feedback as to the rules of engagement. A such, it is hypothesized that both group cohesion and interpersonal indicators will likely increase and plateau. In support of this, it has been shown that open communication does decrease over time while cohesion increases (Akyol & Garrison, 2008). As well, interpersonal communication creates camaraderie after a period of intense association (Brown, 2001). This speaks to the development of constructive emotional responses that further open communication and an environment for participants to assume cognitive and teaching presence roles and responsibilities according to their abilities.

Notwithstanding the considerable research into social presence, there is much to understand with regard to the construct itself and its relationship to the other presences. An important area of research that has helped us understand social presence is the empirical testing of the causal relationships among the three presences in a community of inquiry. Only a few years ago it was pointed out that few studies have examined the presences simultaneously (Garrison & Arbaugh, 2007). As noted previously, early research explored this issue and found that social presence plays an important mediating role between teaching and cognitive presence (Garrison et al., 2010; Shea & Bidjerano, 2009a). This mediating role of social presence has been confirmed by a rigorous and comprehensive study and has associated it with higher academic performance (Joksimović, Gašević, Kovanović, Riecke & Hatala, 2015). Furthermore, this study found that teaching presence is essential to establishing social presence. Another recent study also demonstrates the crucial role of social presence in achieving high-level learning objectives

(cognitive presence), although it was noted that all three presences need to be considered jointly (Gutiérrez-Santiuste, Sabiote-Rodríguez & Gallego-Arrufat, unpublished).

The relationships among the presences were explored more deeply in a study that looked at their progression over time (Akyol & Garrison, 2008). First, it was shown that each of the social presence categories developed at different rates. For example, it showed that affective expression dropped significantly while group cohesion increased significantly over time. This is consistent with a study by Vaughan and Garrison (2005) who also found a decrease in affective and open communication and an increase in group cohesion. While theoretical predictions of the importance of social presence communication as a whole suggest a decline over time (Garrison & Arbaugh, 2007), fluctuations in social presence have been shown to be affected by teaching presence. Shea et al. (2010) state that "as instructor teaching presence rises or falls, there is a correlating rise or fall in student social presence" (p. 13). One interpretation of this is that this may be the result of the emphasis on social or cognitive presence by the instructor. In other words, a strong focus on the academic tasks may well see a fall in social presence indicators and, conversely, an instructor who models strong social presence will very likely raise the level of social presence in the community as a whole. The key, however, is that this modeling should match and complement the specific academic task.

Another line of research has linked social presence with satisfaction, learning outcomes and retention. An early review of this research found evidence of a relationship between social presence, satisfaction and perceived learning (Garrison & Arbaugh, 2007; Kim, 2011). More recent studies have confirmed these findings linking social presence and satisfaction (Akyol & Garrison, 2008; Akyol & Garrison, 2010b). Zhan and Mei (2013) looked at online and face-to-face learning environments and concluded that the "effect of social presence on student learning achievement and satisfaction were stronger in online environment than in FTF [face-to-face] environment" (p. 131) and added that there is a greater need of social presence in online learning. Consistent with our previous discussion of the importance of identifying with the academic purpose of the group, Leong (2011) found that social presence is associated with satisfaction but is mediated through cognitive engagement. It seems that we cannot disassociate social and cognitive presence with regard to satisfaction. However, there is also a study that has shown a significant relationship between collaborative learning and satisfaction but not between social presence and overall satisfaction (So & Brush, 2008). The explanation is that social presence is a complex concept that is associated with both social and academic factors (reinforcing the interdependency of the presences). The evidence suggests that participants in a community of inquiry distinguish between social interaction and meaningful academic discourse.

Recent studies have also confirmed previous studies that show social presence to be associated with perceived learning (Caspi & Blau, 2008) and

final grades (Akyol & Garrison, 2011a; Kang & Kim, 2006; Liu, Gomez & Yen, 2009; Zhan & Mei, 2013). In this regard we have argued that social presence that promotes group identity and cohesion can create a greater sense of perceived and actual learning. Looking at social presence and retention there is one large scale study that provides an interesting insight into re-enrollment in fully online programs (Boston, Diaz, Gibson, Ice, Richardson & Swan, 2009). This study has shown a significant relationship between social presence and retention that is consistent with previous research into social integration in higher education. The authors conclude, "social interaction remains a crucial factor for student retention" (Boston et al., 2009, p. 77). While many exogenous factors influence retention, a sense of belonging to a community can influence motivation to persist.

Finally, this brings us to the need to explore the connection of social presence to motivation as this has been shown to be crucial in sustaining engagement in a learning community. There is a reciprocal relationship between community and motivation. In support of this it has been suggested that task motivation is stronger in groups compared to individual work (O'Donnell & Kelly, 1994). The social nature of humans contributes enormously to motivation which is why a sense of belonging to a group can sustain motivation. Motivation is a social-emotional response that is part of initiating interest, directing effort and maintaining focus. Motivation is associated with social presence but is particularly associated with the commitment and persistence to metacognitively monitor and manage the inquiry process (Malmberg, Järvelä, Järvenoja & Panadero, 2015). Moreover, motivation is essential for active participation in a collaborative learning environment (Kim, Glassman & Williams, 2015). Motivation is an important artifact of the social-emotional dimension of social presence and a community of inquiry. Thinking and learning collaboratively provides an emotional reward and motivational advantage.

The conclusion is that social presence is a multidimensional construct essential to the effective functioning of a community of inquiry. At a minimum, the previous studies point to the complexity of the social presence construct and understanding the social and emotional dynamic of a purposeful community of inquiry. Further study is required to better understand social presence including patterns of development, connection to the other presences, and its influence on dependent variables such as learning outcomes and retention. The first step to achieving these goals is to recognize its influence and continue to refine the multidimensional nature of social presence.

### **Categories of Social Presence**

The original classification scheme for social presence was constructed through a theoretical analysis of the literature as well as the analysis and coding of computer conferencing transcripts (Rourke, Anderson, Archer &

Garrison, 1999). This resulted in three broad categories of social presence indicators consisting of affective communication, open communication, and cohesive communicative responses. However, sharing social-emotional feelings in a purposeful community of inquiry is not the purpose of a community of inquiry. The purpose is to support the achievement of intended academic goals. The view here is that academic goals will be achieved when a climate of open communication is developed. Notwithstanding social presence's importance as a mediating variable between cognitive and teaching presence, the social-emotional dimension needs to be carefully considered and its role articulated within the social presence construct.

### **Affective Communication**

After nearly two decades of research into the CoI framework, attention is being directed to the role of the affective or emotional climate. While the importance of social-emotional environment in regulating cognition is clear, the evidence also suggests that group identity takes precedence over personal identity in purposeful academic environments. Therefore, it is argued here that in establishing a community of inquiry it is crucial to set the academic climate for open and purposeful communication. Open communication and group cohesion extends beyond simply attending to affective communication. Open communication is an essential facilitating condition for engagement in meaningful discourse and developing a sense of purposeful connection to the group. Students join educational environments for academic purposes and not for social reasons. That said, a respectful and supportive climate is important to establish the emotional and intellectual conditions necessary for critical reflection and discourse. It is clear that understanding the pervasive influence of emotion must be a focus of further study.

There are three major indicators of affect communication. First, in online environments when visual cues and vocal intonations are not present, expression of respect and welcome can be communicated through other means such as emoticons and capitalization. Second, beyond the increasingly accepted means of expressing feelings through emoticons, language itself through the content of messages is a very powerful communicator. Perhaps the easiest to appreciate but most difficult to identify is related to humor. Humor and personal references convey goodwill and suggest that there are no serious personal challenges. Third, another very human way of establishing a personal connection is through self-disclosure. Basically, the more we know about other members of the community, the more trustful and responsive we become in terms of academic discourse.

### **Open Communication**

Collaborative inquiry has as a foundation open communication that is reciprocal and respectful. Open communication requires a climate of trust and

acceptance that allows questioning while protecting self-esteem and acceptance in the community. Open communication is built through a process of recognizing, complimenting and responding to the questions and contributions of others, thereby, encouraging reflective participation and discourse. Expressing agreement, as well as questioning the substance of messages, reveals engagement in the process of reflection and discourse. Reflective and critical discourse in a community is built upon open communication.

### Cohesive Responses

Interpersonal and open communication contributes directly to the third category of social presence—group cohesion. Group cohesion is the dynamic state that is initially the function of establishing social presence. Cohesive communication begins with social presence and simple behavior such as addressing others by name. Group cohesion and association is taken to the next level by using inclusive pronouns such as “we” and “our.” It is cohesion that helps sustain the commitment and focus of a community of inquiry, particularly in an online learning group. More specifically, constructing meaning, confirming understanding and completing collaborative activities, will only be successfully in a cohesive community. When students identify with the group and perceive themselves as part of a community of inquiry, the discourse, the sharing of meaning and the quality of learning outcomes will be optimized. Conversely, success in the cognitive domain also has a reciprocal and reinforcing effect on group cohesion.

Group cohesion creates an increased capacity to collaborate. In a community of inquiry, Amemado (2013) has argued that group cohesion needs to be given greater consideration. The importance of group cohesion is supported by research (Baker, 2003; Conrad, 2005). It is recognized that group cohesion is predicated upon a delicate balance of personal and purposeful academic identity. However, it is suggested that purposeful group identity be prioritized recognizing that it serves to strengthen the community at the outset. Thus, social presence develops by attending to each of the categories concurrently but the emphasis should first be on purposeful group identity (addressing why participants are there) while allowing the growth of personal affiliations through social-emotional communication techniques.

### Practical Implications

The challenging question is how does one establish social presence in online and blended learning environments that will support thinking and learning collaboratively in a community of inquiry? First, we must appreciate that we are always challenged to find the optimal balance of social presence as tasks and needs change. In general, too little social presence may not sustain open communication and commitment (group cohesion). On the other hand, too

much social presence may inhibit meaningful discourse by avoiding critical questioning and constructive disagreement. The primary goal and identity of the group must be deep and meaningful learning experiences and not simply social interactions.

This issue of social presence supporting the larger academic purpose was brought to our attention by Liam Rourke, our research assistant during our early research before online learning became the popular term. Liam noted this important insight with regard to the students’ attitudes when coding transcripts:

Despite theoretical rumors to the contrary, students do not complain that computer conferencing is asocial, terse, hostile, etc. On the contrary, if students complain, it is that the conference is too social, too polite, not critical or challenging, and thus not a productive learning experience.

(Rourke, personal communication, 2000)

The criticism from students was that students were not being challenged when there was too much emphasis on the social and not enough on the inquiry process. Students identified first with the academic goals of the group and secondarily with fellow participants. A student summed up this phenomenon of “pathological politeness” (a phrase coined by our colleague Walter Archer) in the following manner:

In the context of the [group], it was important to differentiate trust—a willingness to make oneself vulnerable to colleagues—from congeniality. The first is genuinely the basis for posing challenging questions; the latter can actually stand in the way of “straight talk.”

Distinguishing between trust and excessive politeness is a crucial distinction for creating and sustaining a community of inquiry. It is not easy for students to engage in critical discourse and this can adversely affect collaboration (Lambert & Fisher, 2013). While collaboration is dependent upon social presence (So & Brush, 2008; Zhao, Sullivan & Mellenius, 2014), there is a risk that this could also inhibit open communication. Establishing social presence must be concerned as much with the academic purpose (cognitive and teaching presence) as with the social-emotional environment.

The possibility that social-emotional issues might undermine cognitive presence was demonstrated in a study by Jahng et al. (2010). They found that increased social communications reduced cognitive communications. They conclude that “there may be an appropriate level of social communication that supports collaborative activity more generally directed at a learning goal [cognitive presence]” (Jahng et al., 2010, p. 54). The bottom line is that

excessive emphasis on developing interpersonal relationships may have deleterious effects on the academic functioning of the group if the interpersonal bonds are stronger than the identity to the group and its goals. Therefore, by way of example, excessive time on introductions at the beginning of a course of study may well be counterproductive. The implication from a practical perspective is that while individuals should make personal contact through such means as personal bios, this must not distract from the academic activities of the group. In general, this suggests that members of the community should develop relationships naturally and progressively through the purposeful and collaborative inquiry process. In this way, positive affective responses can be created that support the inquiry process.

This need for a balance of the purposeful and personal is also evident in specific social presence indicators. For example, humor must be used carefully or it can isolate individuals. Due to the risk involved in using humor effectively in a lean, text-based medium, examples of humor are not commonly found in e-learning communities. Certainly, if it is to be used, it is perhaps best to wait until social presence is firmly established and the personalities of the individuals have been revealed sufficiently.

Modeling of appropriate messages and responses can also be crucial in giving the participants a sense of belonging. These messages and responses should set the tone and draw reluctant participants into the discussion. For this reason, teaching presence must be particularly sensitive and responsive at the start of a learning experience while being clear the purpose of establishing a socially secure environment is to facilitate critical thinking and discourse. That is, we must be careful not to emphasize personal identity (interrelationships) at the expense of group identity (academic purpose). Ice breaking activities should not be focused only on introductions but designed around discussing course expectations and establishing group identity by asking students to collaboratively explore and negotiate expectations.

Finally, consideration needs to be given to an initial face-to-face or synchronous online meeting of the group. This can have an accelerating effect on establishing social presence and can shift the group dynamics much more rapidly toward academically productive activities. Learning activities that may be more effectively or efficiently conducted in a face-to-face setting could also be scheduled at this time. Such blended approaches have strong advantages that go beyond social presence. If possible, the loss of freedom with regard to time and location for a face-to-face meeting may well be a worthwhile trade-off.

## Conclusion

While strong social presence does provide the basis for respectful questioning and critique, by itself it does not guarantee an optimally functioning

community of inquiry. It has been shown that social presence is a mediating variable with regard to cognitive and teaching presence. The optimal level of social presence is dynamic and dependent on the specifics of cognitive and teaching presence. To further understand creating and sustaining an educational community of inquiry, we shift our focus to the academic dynamic as embodied in the cognitive presence construct.

## Cognitive Presence

The Community of Inquiry (CoI) theoretical framework is intended to focus on the challenge of engaging in purposeful collaborative inquiry. From the inception of the Practical Inquiry construct (cognitive presence), the question is whether higher-order thinking and discourse could be realized in an asynchronous, largely text-based educational environment. More specifically, can cognitive presence be created in an online environment and can students successfully move through the phases of practical inquiry that defines cognitive presence? The goal in this chapter is to describe the cognitive presence construct and Practical Inquiry (PI) model and provide an explanation of the nature and quality of inquiry conducted in an online learning environment.

It is to the collaborative thinking and learning experience and the required cognitive presence that we focus our attention. We use the cognitive presence construct to describe the academic process that supports sustained critical thinking and discourse and higher-order knowledge acquisition and application. More specifically, in the context of this discussion, cognitive presence means facilitating the analysis, construction and confirmation of meaning and understanding within a community of learners through sustained reflection and discourse. In an online learning context this includes being supported primarily through text-based communication.

We begin our discussion by turning our attention to the genesis of the cognitive presence construct.

### Critical Thinking

Cognitive presence is closely associated with critical thinking. The concept of critical thinking that we build on here is derived from Dewey's (1933) reflective thinking model. For Dewey, reflective or critical thinking has practical value in that it deepens the meaning of our experiences. Making sense of our experiences was Dewey's core educational aim. The adjective "critical" is associated with "reasoning, evaluation and judgment, and these in turn have to do with the improvement of thinking" (Lipman, 2003, p. 3).

Consistent with Dewey's reflective thinking model, Lipman also notes that critical thinking is sensitive to context in terms of exceptional circumstances and generalizability.

Critical thinking both authenticates existing knowledge and generates new knowledge which makes an intimate connection with education. The other dimension that must be noted is the interplay between our private and public worlds. The objective of the reflective paradigm is intellectual autonomy but, in reality, is "thoroughly social and communal" (Lipman, 2003, p. 25). Lipman (2003) argues the importance of interaction in an educational context is supported by the fact that "the reflective paradigm assumes education to be inquiry" (p. 19); therefore, the "only fully appropriate pedagogy [is] the community of inquiry approach" (p. 5). Inquiry is a self-correcting process where members of the community challenge beliefs, suggest alternative perspectives for exploration, and negotiate understanding.

To be a critical thinker is to exhibit considerable independence of thought while not being immune to external challenge. To be clear, it is the individual that thinks and learns, not some amorphous group often associated with group think. However, it is difficult in an educational context to manage this curious balance between the curiosity of the individual and the constructive influence of the group. While the individual's rationality must be challenged, it is also crucial that the group does not suppress curiosity and open inquiry. An educational community is not a singularity where the social group led by the teacher is supreme and intended only to perpetuate the current state of knowledge. Thinking and learning collaboratively must protect and encourage the integrity of the individual from simply mimicking others in the community. Understanding this dynamic such that it will have a beneficial influence on thinking and learning is the function of a community of inquiry.

We are social beings and have an inherent predisposition to get into the minds of others; however, we must learn how to critically and objectively assess our own thoughts. Our conscious thoughts are generated and formed through social interaction. The educational goal should not be simply to transfer information to the individual but increase the awareness of the individual about their thinking process and how to assess the validity of various ideas whether they be socially transmitted or generated by the individual. We must avoid the singularity to think and learn in relative isolation. Personal reflection by itself is not sufficient to increase critical awareness and, therefore, to think deeply about complex issues. Critical thinking extends beyond personal thoughts and experiences. Critical thinking is more effective within purposeful communities of inquiry. The true goal of thinking and learning collaboratively is to increase personal awareness by challenging misconceptions. This is virtually impossible without external input through sustained discourse.

Critical thinking and inquiry provide the means to share and explore personal beliefs and perspectives. The propensity to not see beyond our personal

experiences and beliefs and unconsciously ignore contrary evidence is termed confirmation bias (Nickerson, 1998). Addressing confirmation bias is best addressed through thinking and learning collaboratively where learners develop a healthy skepticism and understand the dangers of certainty. Perhaps the great contribution of collaborative inquiry is to challenge inherent confirmation bias and the dangers of ideological certainty. The ability and willingness to step back and critically examine our assumptions and ideas helps us develop a metacognitive awareness essential to worthwhile and continued learning. Moreover, this is inevitably a shared metacognitive awareness.

Critical or reflective thinking is integral to inquiry. However, what exactly we mean by critical thinking is not self-evident. The reason, among others, for selecting Dewey's concept of reflective thinking is that it is comprehensive and coherent. Most forms of thinking (e.g. creative, critical, intuitive) can be interpreted within this framework. Critical thinking is viewed here as an inclusive process of higher-order reflection and discourse. In an attempt to integrate various overlapping concepts associated with reflective and critical thinking, we build on a generic model of critical thinking that has its genesis in Dewey's phases of reflective thought and that considers imagination, deliberation and action (Garrison & Archer, 2000) (see Figure 5.1).

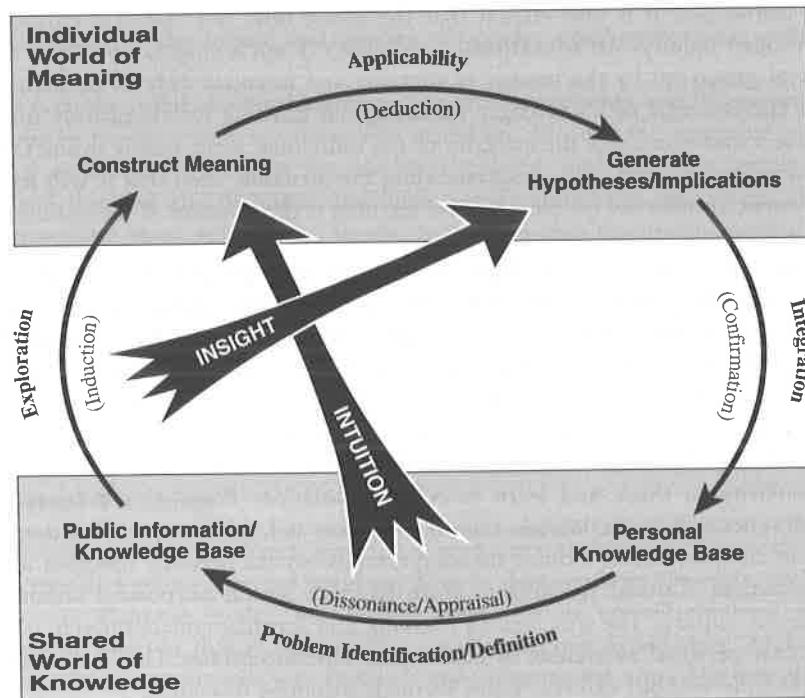


Figure 5.1 Critical Thinking and Intuition

Perhaps the key element of this critical thinking model is the overlay of the concept of the public and private worlds on the phases of reflective inquiry. This is particularly relevant in an online learning experience considering it is largely an asynchronous and text-based environment. The reason is a text-based environment has the potential to provide a remarkable balance between reflection and discourse. This is contrary to verbal discourse which favors a spontaneous and less reflective process. This recognition of two realities is an advantage in appreciating that while all phases of inquiry have elements of reflection and discourse (unity principle), one phase may emphasize discourse over reflection and vice versa. Because reflection and discourse cannot be separated in practice, this distinction makes sense only in the abstract and is intended for purposes of analysis and understanding of cognitive presence.

To this point we have focused on the conscious awareness of our thinking and learning. However, there is much latent cognitive activity at the subconscious level to which we have little awareness. In this regard, the critical thinking model is useful in making sense of related concepts such as creative thinking, problem solving, intuition and insight (Garrison & Archer, 2000). First, creative thinking is clearly a divergent process focused on the early stages of critical thinking. On the other hand, problem solving shifts focus to convergent thinking that emphasizes the latter phase of the critical thinking process. That is, the goal is a solution to a specific problem. The differences between creative thinking and problem solving are a question of emphasis and purpose as both processes include elements of the other and are aspects of critical thinking and inquiry phases. Inquiry includes a blend of both creative (intuitive and insightful) and critical (reasoned) thinking. The key issue is that intuition and insight are legitimate aspects of a rational and collaborative process of thinking and learning. Collaborative constructive dynamics emphasize that learners rationally examine assumptions, ideas and evidence when we engage in discourse to negotiate and confirm understanding. Knowledge is not transmitted in whole from the teacher to the student.

Second, concepts and processes related to intuition and insight cannot be ignored. These are important aspects of rational thought that can be explained and are not simply mystical processes to be rejected as scientifically unworthy of consideration. We have all experienced intuition that guides our conscious thinking. Many have also experienced insights or perhaps epiphanies when dealing with a dilemma or problem that seem to appear when we least expect it. For these reasons, any discussion of inquiry should consider the role of the subconscious mind. Innovation and creativity are neither easily visible nor predictable. The conscious mind is all we can come close to observing, but we must not underestimate the subconscious mind. Beneath our conscious awareness are the creative connections that we struggle to bring to the surface. Yet as unpredictable as the creative process

is, evidence suggests that the best way this is done is through the fusion of reflection and discourse—through collaborative inquiry.

Intuition and insight are important creative and subconscious inductive processes that are, according to Dewey, a “product of practical deliberation” (Garrison, J., 1997, p. 33). Intuition is not an “out of the blue” experience but is preceded by purpose and considerable reflective thinking. Moreover, like insight, it inevitably results from a deep and integrated understanding of a phenomenon. Generally, it is seen as a vague, inexact awareness of the key to a problem that provides useful direction to clearly explicate the solution. This differs from insight in that insight is the classic “eureka” experience where clear solutions or coherent conceptualizations occur. While intuition arises more directly from experience, insight arises as a result of considerable reflection (being immersed in a well-defined problem) and the generation of tentative conceptual representations (Garrison & Archer, 2000). Intuition and insight must lead to the union of perception and reason (Dewey, 1967) and are essential to coherent systematic thinking.

However, when individuals are left on their own, thought processes can be suspect and need to be exposed to critical analysis. It has been noted that we “often employ intuitive processes when we make assessments and choices in uncertain situations” (Mlodinow, 2008, p. 4). This is an unproductive process if it is embedded in unreflective ideological perspectives. Too often we confuse wishful thinking with intuitive thought processes grounded in purposeful inquiry. Intuition is a legitimate cognitive process when informed by sound information and argument. In areas of uncertainty, intuition can be more than useful in bringing together disparate ideas that provide direction for further exploration. The key element, of course, is the critical discourse that provides a check on irrational or ideological thought processes. Inquiry embedded in purposeful collaboration can ensure the creativity of intuition is balanced with the test of critical thinking; that is, the integration of perception and reason. In this way, inquiry is an invaluable process to develop all of our thinking and learning abilities.

Educators seek to understand these cognitive processes in order to allow them to design more natural and less contrived educational experiences, that is, educational experiences that recognize how individuals reconstruct experience and construct meaning, thereby not condemning learners to assimilating inert knowledge or moving to predetermined conclusions. This is important in any learning environment where there is intellectual freedom and personal responsibility. The collaborative yet reflective process of inquiry has great potential for facilitating critical thinking that is core to a worthwhile educational experience. The challenge is to use this to build the critical spirit along with discipline-specific, critical-thinking abilities developed through the process of constructing meaning and confirming understanding. We define critical thinking in terms of cognitive presence operationalized through the practical inquiry (PI) model.

## Practical Inquiry

Practical inquiry is a generalized form of the scientific method that is grounded in experience (Dewey, 1933). The integration of the public and private worlds of the learner is a core concept in developing cognitive presence for educational purposes. The cyclical two-dimensional PI model is presented in Figure 5.2. The continuum between action and deliberation is reflected in the vertical dimension of the model. This is consistent with the sociological (shared) and psychological (private) aspects of reflective thinking proposed by Dewey. As Dewey (1938) noted, “Any account of scientific method must be capable of offering a coherent doctrine of the nature of induction and deduction and of their relations to one another” (p. 419). This dimension of practical inquiry is the rigorous process of integrating the dynamics of inductive (arrival of generalizations) and deductive (deployment of generalizations) reasoning.

The transition point between the concrete and abstract worlds is reflected in the perception and conception dimension of the PI model. This horizontal dimension of the model reflects the point of fusion of the shared and private worlds. At one extreme is the divergent process of perception and analysis of facts or events. At the other extreme is the convergent process of insight and understanding associated with ideas and concepts. Therefore, the vertical and horizontal dimensions of the PI model reflect inductive/deductive and divergent/convergent processes of critical thinking core to the ideals of higher education.

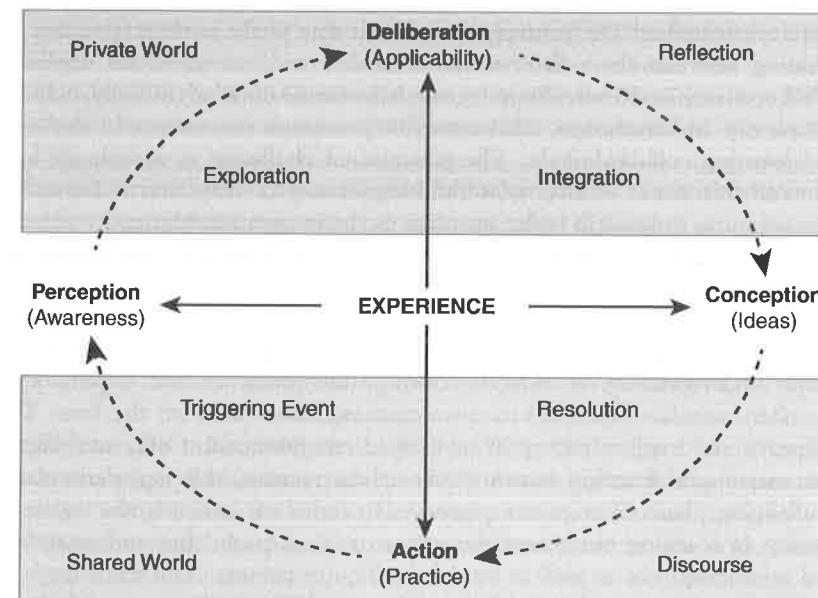


Figure 5.2 Practical Inquiry Model

Beyond the two basic dimensions of the model, practical inquiry includes four phases (trigger, exploration, integration and resolution) that describe cognitive presence in a community of inquiry. To start, we must emphasize that these phases are not immutable. They are generalized guidelines that, in practice, may be telescoped or reversed as insight and understanding are either achieved or blocked. However, a metacognitive understanding of all phases can be of enormous value to both educator and learner in assessing the task at hand, progress achieved and future directions.

The first phase of practical inquiry is the initiation or triggering event. Educationally, this needs to be a well-thought-out activity to ensure full engagement and buy-in from the group. It should also speak to a core organizing concept or issue of the knowledge domain being studied. Preferably, this would be a dilemma or problem that students could relate to, based on their experience or previous studies. While the responsibility of the educator is to initiate this phase of task analysis, this can be structured in a more open and exploratory manner by framing the issue and eliciting questions or problems that students see or have experienced. This has several positive attributes in terms of involving students, assessing the state of knowledge, and generating unintended but constructive ideas.

The second phase of practical inquiry is exploration. The first task here is to understand the nature of the problem and then to search for relevant information and possible explanations. This may be done through group activities and brainstorming and/or through more private activities such as literature searches. The primary dynamic at this phase is the experience of iterating between the reflective and shared worlds as ideas are explored collaboratively and individuals try to make sense of what initially may be complexity and confusion. This recursive process is the essence of thinking and learning collaboratively. The educational challenge is to manage and monitor this phase of divergent thinking in such a way that it begins to become more focused in order to move to the integration phase.

The third phase, integration, moves into a more focused and structured phase of constructing meaning. Decisions are made about integrating ideas and how order and structure can be created. While this is a highly reflective phase, students are also intimately engaged in critical discourse that will shape understanding. It may be during this phase of the inquiry that the characteristics of asynchronous communication come to the fore. The reflective and explicit nature of text-based communication may well facilitate meaningful learning outcomes. For these reasons, this is a particularly challenging phase of cognitive presence. In terms of assessing the depth or quality of learning outcomes, the educator must probe for understanding and misconceptions as well as model the inquiry process. The tendency is to become entrenched in the exploration phase and not move to more advanced phases of inquiry. Developing cognitive presence necessitates engaging

students in all the phases of practical inquiry, including a shared metacognitive awareness and appreciation of the inquiry process.

The fourth phase is the resolution of the dilemma or problem, whether reducing complexity by constructing order or discovering a contextually specific solution to a defined problem. This confirmation or testing phase may be accomplished by direct or vicarious action. Direct confirmation is more difficult and often impractical in an educational context. However, in an e-learning environment, with students operating out of work or family contexts, direct applications and testing may be more realistic. In any case, vicarious or mental modeling of solutions is a viable and worthwhile educational activity. In educational environments, as in real life, resolution is seldom fully achieved. Inevitably, results of the resolution phase raise further questions and issues, triggering new cycles of inquiry and, thereby, encouraging continuous learning.

## Evidence and Insights

An apparent challenge to the cognitive presence construct emerged early in CoI research. The evidence seemed to suggest that the discourse was not moving discussion to the integration and resolution phases of inquiry. In response to the early findings that inquiry seemed to stall, Garrison and Arbaugh (2007) argued that this was most likely a function of teaching presence such as the design of the task (clear outcome expectation), the need to be more directive in providing crucial information, and moving the discussion forward in a timely manner. This view has been supported in the literature where students were expected to reach resolution and direction was provided (Richardson, Arbaugh, Cleveland-Innes, Ice, Swan & Garrison, 2012). Similarly, Rourke and Kanuka (2007) noted the importance of the teacher and the design in higher-order discourse and concluded that they observed “denser concentrations of postings in the higher phases of critical discourse models when students are presented with structured discussion activities with clearly defined roles for teachers and students” (p. 121). This supports another observation with regard to cognitive presence that inquiry becomes more demanding as it moves to resolution (Garrison & Arbaugh, 2007).

The importance of teaching presence in achieving resolution has been supported in subsequent studies. Studies are specific in pointing to the design and nature of the task as the greatest factor in reaching resolution (Alavi & Taghizadeh, 2013; Bai, 2009; Staley & Ice, 2009). With regard to the importance of design, Richardson and Ice (2010) found higher levels of practical inquiry “with 81% of students at the integration or resolution levels for the case-based strategy” (p. 57). The conclusion from these studies is that tasks designed to achieve resolution will see greater activity at the integration and resolution phases (Stein, Wanstreet, Glazer, Engle, Harris, Johnston, Simons & Trinko, 2007). Beyond design, Bangert (2008) has shown that teaching and

social presence, in particular facilitation and direction, were associated with more messages at the highest levels (integration and resolution) of cognitive presence. Similarly, it was found that higher-order critical thinking (i.e. integration and solutions) could be produced in student discussions by specific instructional techniques (Pisutova-Gerber & Malovicova, 2009).

An important insight associated with the phases of practical inquiry note that integration and resolution phases will naturally reflect fewer responses or contributions as participants are challenged and become more reflective when they converge on possible solutions (Akyol, Arbaugh, Cleveland-Innes, Garrison, Ice, Richardson & Swan, 2009). It should also be kept in mind that online discussions seldom provide sufficient time to reach resolution (Richardson & Ice, 2010). In this regard, one study successfully increased activity at the integration and resolution phases by designating a specific and sufficient amount of time for discussion at each of the phases (de Leng, Dolmans, Jobsis, Muijtjens & van der Vleuten, 2009). Another important insight with regard to activity associated with inquiry is that major projects generally reach resolution offline and, therefore, evidence of this activity in transcripts will be largely absent (Akyol & Garrison, 2008; Archer, 2010; Shea, Hayes, Vickers, Gozza-Cohen, Uzner, Mehta, Valchova & Rangan, 2010). In this regard Akyol and Garrison (2010a) noted that with major projects, students believed they reached integration and resolution phases but “most of them thought that resolution is achieved individually through their final projects” (p.10).

Cognitive presence in terms of inquiry has also been found to be associated with the nature of the course and the type of assignments. Evidence of cognitive presence was significant for humanities and social sciences but not for professional courses requiring specific knowledge and skills (Garrison, Cleveland-Innes & Fung, 2010). Similar results were reported by Arbaugh, Bangert and Cleveland-Innes (2010) when they “found significant disciplinary differences, particularly regarding cognitive presence, in soft, applied disciplines relative to other disciplines” (p. 37). More specifically, it was found that courses focusing on acquiring specific knowledge and skills, and the teacher informing the student, do not lend themselves to exploration and integration and, therefore, showed lower scores in cognitive presence (Arbaugh et al., 2010). Consistent with this Gorsky, Caspi, Antonovsky, Blau and Mansur (2010) found that students in science courses with a large number of problem solving assignments were more active and levels of all presences were higher. From a teaching presence perspective, humanities’ instructors posted three times more triggering messages while “science instructors posted four times as many messages associated with the category ‘exploration’” (Gorsky et al., 2010, p. 64). Not only does this reflect possible differences in disciplines but also supports the importance of appropriate instructional design and the nature of the task in cognitively engaging learners in particular disciplines.

The value of collaboration and discourse is reflected in learning sciences research. With regard to the learning sciences, Sawyer (2008) has stated that “the best learning takes place when learners articulate their unformed and still developing understanding, and continue to articulate it throughout the process of learning” (p. 53). The crucial role of interaction in critical thinking has been confirmed (Saade, Morin & Thomas, 2012) but interaction is not enough. The interaction must display specific characteristics such as purposeful open discussion and be driven by curiosity, skepticism and reason—what we refer to as discourse. However, as we noted, the nature of the interaction and quality of discourse is dependent upon the nature of the task. In this regard, it has been shown that problem solving can engage students and increase cognitive presence (Gorsky et al., 2010). This adds to the evidence that quality learning experiences are associated with collaborative inquiry generally and specifically with critical discourse.

Another area of cognitive presence research has focused on learning outcomes—both perceived and actual. Notwithstanding that cognitive presence is a process model, there has been interest associated with its association to learning outcomes. The question is whether the PI model can be used to predict learning outcomes (Akyol et al., 2009; Rourke & Kanuka, 2009). In this regard, it should be noted that the PI model has been compared to other models such as Bloom’s taxonomy and found that practical inquiry predicts learning outcomes with favorable results (Buraphadeja & Dawson, 2008; Cotton & Yorke, 2006; Meyer, 2004; Schrire, 2004, 2006). In fact, in comparing the PI model with Bloom’s and the SOLO (structure of observed learning outcomes) taxonomies, Schrire (2004) found the PI model “to be the most relevant to the analysis of the cognitive dimension and represents a clear picture of the knowledge-building processes occurring in online discussion” (p. 491). Buraphadeja and Dawson (2008) also note that the PI model has been widely cited as suitable for assessing critical thinking. Moreover, more recent studies have provided evidence that a community of inquiry can play a significant role in supporting critical thinking and discourse that leads to improved learning outcomes (Rockinson-Szapkiw, Wendt, Wighting & Nisbet, 2016; Warner, 2016; Yang, Quadir, Chen & Miao, 2016).

Perceived learning has been used as a proxy measure for learning outcomes due to the enormous challenge of measuring the quality of learning outcomes. Considering the latent nature of learning, perhaps individuals may be a worthy source for assessing learning. Adding to this dilemma, grades are considered a measure of learning outcomes but too often they simply reflect easily measured surface learning (i.e. recall). However, there is evidence that cognitive presence, as defined by the PI model, is associated with both perceived and actual learning outcomes (Akyol & Garrison, 2010b; Benbunan-Fich & Arbaugh, 2006; Lim, Morris & Kupritz, 2007; Roblyer, Freeman, Donaldson & Maddox, 2007). The point is that

perceived learning should not be discounted as a useful measure of learning, especially in the early stages of constructing meaning. Notwithstanding the importance of assessing outcomes, the inquiry process is crucial to inform and assist in the development of the educational process. As Akyol et al. (2009) state: "The point is that understanding the educational transaction and processes of learning not only is the focus of the CoI framework but may well be of much greater value in understanding, shaping and improving the educational experience" (p. 9).

As was noted previously, the CoI theoretical framework is a process model and each of the presences are dynamic and progressive. In particular, cognitive presence provides a model of how to approach learning through inquiry and whose primary focus is collaboratively constructing and confirming meaningful and worthwhile knowledge. Understanding the dynamics of this process is the strength of cognitive presence and the CoI framework. This perspective assumes that participants think and learn collaboratively and, therefore, benefit from the critical insights of others. This is why it is troublesome to hear suggestions that the CoI framework include a fourth presence to accommodate self-regulation behaviors (Shea, Hayes, Smith, Vickers, Bidjerano & Picket, 2012). The reality is that the self-regulation construct on its own fails to explain thinking and learning in a community of inquiry. We must move beyond the self into a shared and distributed learning environment that offers the possibility to collaboratively monitor and manage the learning transaction.

### **Shared Metacognition**

From the perspective of the CoI framework, the intent is to provide a coherent consideration of the shared roles and responsibilities for self and others. This requires an awareness and ability to individually and collaboratively assume responsibility to regulate the thinking and learning process. This executive cognitive process has been referred to as metacognition. In its essence, metacognition reflects the awareness and strategies to assess the learning process (Schraw, 2001, p. 6). The use of the term metacognition has been with us since the late 1970s (Flavell, 1979) but there still remains no general agreement as to its definition. For this reason, there is recognition of the conceptual "fuzziness" surrounding metacognition (Tarricone, 2011). This creates opportunities to explore derivative constructs, especially those associated with collaborative approaches to thinking and learning. Historically, metacognition has been strongly associated with self-regulation as it is central to the control of cognition. However, the challenge is that the focus on "self" creates difficulties when attempting to include socially shared or collaborative thinking and learning activities.

Notwithstanding, the study of metacognition has recognized the importance of social sharing and collaboration in understanding and supporting

metacognition (Brown, 1987; Larkin, 2009; Schraw, 2001; Wade & Fauske, 2004; White, Frederiksen & Collins, 2009); subsuming collaborative aspects of regulation within the self-regulation construct created conceptual inconsistencies. To emphasize the process of thinking and learning collaboratively, there has been a recent movement in metacognition theory away from the self and individualistic models to an acknowledgement of metacognition as socially situated and socially constructed (Larkin, 2009). For this reason, metacognition is seen as arising from the interaction among individuals and their environment rather than largely an individual process (Iiskala, Vauras, Lehtinen & Salonen, 2011). Therefore, cognitive sharing and collaboration is an important activity in the development of metacognitive awareness (Brown, 1987; Larkin, 2009; Schraw, 2001; Wade & Fauske, 2004; White, Frederiksen & Collins, 2009).

The perspective here is that the development of metacognitive awareness is dependent upon cognitively and motivationally engaged learners that include individual and shared cognition. In this regard, metacognition is required to explain and justify one's thinking to self as well as to others (Flavell, 1987). The "key mechanism ... is the ability to observe and listen to other perspectives" (Lajoie & Lu, 2012, p. 46) and is best realized through discourse (Brown, 1987; Johansson & Gardenfors, 2005; Larkin, 2009). However, the challenge with social models of self-regulated learning is that "there is great diversity in where social is positioned in the [self-regulated learning] model" (Hadwin & Oshige, 2011, p. 242). Significant questions remain with regard to the constructs and dynamics that need to be included in a definition of socially shared metacognition.

The approach to developing a viable metacognition construct for collaborative learning environments is to subsume self- and shared regulatory functions within a metacognition construct (Tarricone, 2011). Developing metacognitive awareness and ability is core to becoming an effective inquirer since it is essential that regulation of the learning process address monitoring and managing how well the inquiry process is transpiring (White et al., 2009). Viewing regulatory functions within the metacognitive construct has the potential to accommodate both self and shared regulatory processes. Furthermore, metacognition has been generally accepted as consisting of two components—awareness and implementation strategies. Awareness allows the learner to monitor the learning process and then to actively manage the inquiry process. In short, metacognition awareness and implementation ability provides the knowledge and strategies to monitor and manage effective inquiry.

In an educational context, academic achievement has been associated with metacognitive awareness and implementation ability (Stewart, Cooper & Moulding, 2007; Young & Fry, 2008). In online discussions, the evidence is growing that metacognition helps students assess the legitimacy of information (Weigel, Straughn & Gardner, 2010) and the progress they are making in

terms of intended learning outcomes. It is essential during the inquiry process that assessments be made about how the individual and group facilitate cognitive awareness and development. This is a central issue in thinking and learning collaboratively and raises the crucial issues about the nature of a community of inquiry that can support and sustain metacognitive awareness and development. We argue that the inquiry process embedded in the CoI theoretical framework provides the context to conceptually and operationally define and operationalize metacognition in a socially shared environment.

Thinking and learning in a community of inquiry is predicated upon participants taking responsibility to personally construct meaning and collaboratively confirm knowledge. Executive cognitive processes are essential in an inquiry approach to thinking and learning. As Lipman (2003) notes, "All inquiry is self-critical practice" (p. 83). Inquiry necessitates the awareness and ability to critically monitor and manage the learning process. That is, there must be a metacognitive awareness of the inquiry process to understand what is required at each phase; then to exhibit the adjustment and flexibility to ensure progression to resolution. This represents iterating between monitoring tasks and managing strategies as inquiry progresses to ensure achievement of intended learning outcomes.

To this point, we have argued that a metacognition construct must accommodate thinking and learning in a collaborative environment; that is, a coherent metacognition construct that is consistent with the assumptions of a collaborative constructivist community of inquiry. The challenge is that the self-regulated learning construct has an individual orientation that does not explicitly address the collaborative nature of regulation in a community of inquiry. As such, new research on regulation has focused on self- and socially shared regulation (Hadwin & Oshige, 2011; Winne, 2015). This also precipitated the development of a shared metacognition construct that proposed two bidirectional dimensions—self- (individual) and co-regulation (distributed cognition) specific to thinking and learning collaboratively in a community of inquiry (Garrison & Akyol, 2013, 2015a, 2015b). As with reflection and discourse, self- and co-regulation are not only iterative/recursive but indistinguishable in practice.

The shared metacognition construct hypothesized that the dynamic self- and co-regulation dimensions each exhibited a monitoring (awareness) and a managing (strategic action) function (Akyol & Garrison, 2011b). This is consistent with the metacognition literature that defined it in terms of monitoring and controlling cognition (Flavell, 1979). The monitoring function is associated with the awareness of cognition and is a process of reflection on thinking and learning in a community of inquiry. More specifically this is a reflection on expectations, meaningfulness of factual content, procedural effectiveness (inquiry process) and conditional knowledge (strategies) and effort required. On the other hand, the management function represents reflection in action. This is the strategic enactment and control of the

inquiry process that includes setting goals, exploring and questioning ideas, considering alternate hypotheses, and ensuring timely progress. Consistent with the shared metacognition construct, monitoring and management functions reflect the integration of the private and shared worlds of thinking and learning and the fusion of self- and co-regulation (see Figure 5.3).

The CoI theoretical framework provided the context to rigorously test the shared metacognition construct for its structural and transactional integrity. Research has developed and verified the shared metacognition construct consisting of the self- and co-regulation dimensions each of which include monitoring and management functions (Garrison & Akyol, 2015a, 2015b). This work was facilitated by a quantitative instrument that reflected the shared metacognition construct (see Appendix B). While further validation of the shared metacognition instrument is required, the construct and questionnaire offer a promising means to better understand the structure and dynamics of metacognition in collaborative learning environments. Beyond further confirmation of the shared metacognition construct, research needs to be directed to the dynamic between self- and co-regulation. For example, a recent study found students were more engaged in co-regulation (team regulation) than self-regulation in a collaborative learning environment (Saab, van Joolingen & van Hout-Wolters, 2012). This raises a core consideration about how participants in a collaborative learning environment iterate between self- and co-regulation.

The importance of studying metacognition in communities of inquiry was raised in a recent study. Gašević, Adesope, Joksimović and Kovanović (2015) demonstrated the positive effects of externally-facilitated (shared) regulation on cognitive presence. They integrated shared regulation into the design component of teaching presence which provided opportunities for students to co-regulate their learning. These students used metacognitive awareness of cognitive presence in the context of a community of inquiry. Clearly, shared metacognition holds much promise to understand and

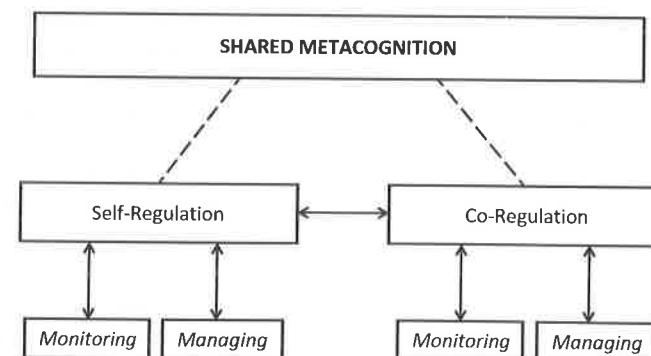


Figure 5.3 Shared Metacognition Construct

support thinking and learning collaboratively. Research has demonstrated that students who provided and received group feedback outperformed students who only used self-explanation strategy (i.e. did not get any metacognitive support) (Kramarski & Dudai, 2009). These self- and co-regulatory dynamics need to be studied both qualitatively and quantitatively to understand how and when shared metacognition functions are most effective. In turn, this research holds the possibility of refining the CoI framework and the development of specific strategies that will effectively guide mutually supported metacognition.

From a theoretical perspective, it is important to understand the place of shared metacognition within the CoI framework. It has been hypothesized as primarily functioning at the intersection of cognitive and teaching presence. The CoI framework provides a broader contextual means to understand the two core functions of shared metacognition. From the cognitive presence perspective, the focus is on awareness and monitoring of thinking and learning; while teaching presence emphasizes the regulation and management responsibilities. This seems to be a natural and logical fit for shared metacognition but considerable research is warranted to fully understand the theoretical and practical implications of the shared metacognition construct. This research will also play an important role in refining and deepening our theoretical understanding of the CoI framework. The next challenge is to demonstrate a positive impact of shared metacognition on learning processes and outcomes in communities of inquiry.

Understanding the impact of shared metacognition on thinking and learning collaboratively is of particular relevance in online and blended learning environments. While metacognition and regulation have been shown to be positively associated with academic achievement, little has been done to understand its role in asynchronous online learning environments (Editorial, 2015). As we have seen in informal online interactions, there is no guarantee of thoughtful collaboration. Simple connectivity does not create productive collaborative thinking and learning experiences. Mediated communication often lacks the social presence that can have a profound effect on commitment and engagement in the learning transaction. With regard to virtual online environments, Volet, Vauras and Salonen (2009) note that “little is known about the extent to which metacognitive regulation is facilitated, maintained, or alternatively inhibited in such contexts” (p. 223). The potential to support and sustain communities of inquiry online have drawn attention to the need to expand our study and understanding of shared metacognition in collaborative learning environments.

Finally, an area of research that has traditionally been associated with metacognition is that of motivation. The reason is that metacognition is predicated upon a willingness to take responsibility to monitor and manage the learning process. As we discussed in the previous chapter, motivation is largely a social-emotional response (social presence), but it is essential in

precipitating interest and directing effort (volition). Conversely, motivation grows as a result of being a contributing and valued member of a learning community. Motivation, however, is not simply an emotional response associated with social presence. Shared motivation is associated with engaging and sharing knowledge in an online learning community which can have a significant influence on thinking and learning collaboratively (Kim, Glassman & Williams, 2015; Malmberg, Järvelä, Järvenoja & Panadero, 2015). Motivation emerges at the point of convergence of each of the three presences (i.e. co-determinative) and must be metacognitively managed to maintain a trusting and constructive environment where participants are willing to remain engaged. Motivation is enhanced when social presence is addressed through trust, open communication and a sense of belonging (cohesion). It is also enhanced when teaching presence addresses expectations, interests and support; and when cognitive presence successfully achieves intended learning goals.

### Cognitive Presence Descriptors

Practical inquiry is the model within which we operationalize and assess cognitive presence. The goal is to provide a practical means to judge the nature and quality of critical reflection and discourse in a community of inquiry. The descriptors and indicators of cognitive presence generated in our research have considerable potential to assess the inquiry process. The goal is to facilitate discourse to achieve the greater purpose of achieving higher-order learning outcomes and use these indicators to assess critical thinking and discourse with regard to the developmental phases of practical inquiry. In this regard, attention to process in terms of ensuring progression through the phases of inquiry is essential.

Table 5.1 provides the descriptors (adjectives characterizing process) and indicators (manifest examples) that correspond to each phase of the practical inquiry process. These were first based on the socio-cognitive processes that characterized each of the phases of practical inquiry. They were then enhanced and confirmed empirically (Garrison, Anderson & Archer, 2001).

The first phase, the triggering event, is associated with conceptualizing a problem or issue. For this reason, we consider this evocative and inductive by nature. The educational processes would include presenting information that generates curiosity and questions. The triggering event will further discussion in a way that builds into subsequent phases of inquiry. An example might be a statement and question such as: “It has been argued that the only way to deliver effective e-learning is through a Community of Inquiry model or approach. Why do you think that is?”

The second phase, exploration, is a search for relevant information and ideas. For this reason, this is an inquisitive and divergent process. The

**Table 5.1** Practical Inquiry Descriptors and Indicators

Phase	Descriptor	Indicator
Triggering event	Evocative (inductive)	Recognize problem Puzzlement
Exploration	Inquisitive (divergent)	Divergence Info exchange Suggestions Brainstorming Intuitive leaps
Integration	Tentative (convergent)	Convergence Synthesis Solutions
Resolution	Committed (deductive)	Apply Test Defend

educational process would include: brainstorming ideas; offering supportive or contradictory ideas and concepts; soliciting narratives of relevant perspectives or experiences; and eliciting comments or responses as to the value of the information or ideas. Following the previous theme, a typical statement corresponding to the exploration phase might be: “One reason I think learning communities are seldom used is that it is too complicated to engage participants collaboratively. Another may be the mindset of those in charge to change practices.”

The third phase, integration, is the process of constructing a meaningful solution or explanation. Therefore, this is considered to be a tentative connection of ideas capable of meeting defined criteria, providing meaning and offering potential solutions. The educational transaction would include: integrating information; offering messages of agreement; building on other ideas; providing a rationale or justification; and explicitly offering a solution.

An example would be: “We also had trouble getting cooperation. Often the use of new tools requires new organizational structures. We addressed these issues when we implemented a systems approach, and I think that’s why we were successful.”

The fourth phase, resolution, critically assesses the viability of the proposed solution through direct or vicarious application. Resolution requires a commitment to test the solution deductively, perhaps through vicarious implementation or thought experiment. This would require a rigorous analysis of the hypothetical test, which could take the form of a presentation and defense with other participants critiquing the suggested application. On the other hand, the test could take the form of a direct application or action research project—either an individual or group project. An example of an

exchange consistent with this phase of practical inquiry might be: “A good test would be to ensure that participants understand the expectations, and that collaboration is properly rewarded. Once implemented, this could be assessed by considering project grades as well as the impressions of the participants.”

The challenge for educators is to move the discussion and individual cognitive development through each of the phases of practical inquiry. That is, to build the discussion from problem recognition (triggering event) through to exploration, integration and resolution. The tendency is to do the first two phases very well, the third phase less well, and the last phase hardly at all. As discussed previously, this is very likely due to a variety of reasons including the nature of the task, limited time, or a lack of a teaching presence to move the process forward. There must be an appreciation and commitment to the value of thinking progressively through a problem and dilemma such that some worthwhile and lasting benefit ensues. This, of course, is the essential purpose of an educational experience.

## Conclusion

Cognitive presence operationalized through the practical inquiry model provides insight into the cognitive aspects of a collaborative learning experience grounded in personal reflection and shared discourse. Cognitive presence operationalized through the PI model is a shared process. Therefore, if educators do not start with a clear outcome, the collaborative dynamics of the thinking and learning process will be severely limited or undermined. While work remains to refine the inquiry process, the PI model with its indicators has been shown to be an invaluable heuristic to guide the development of cognitive presence.

Cognitive presence represents the means to support and sustain a purposeful learning community. The practical challenges, however, are the latent nature of learning and a collaborative approach to thinking and learning. This may partially explain why cognitive presence has been focused upon the least (compared to social and teaching presence) in terms of research using cognitive presence as a treatment variable (Befus, 2016). On the other hand, the Befus study reported a comparable amount of cognitive presence research (compared to social and teaching presence) was focused on using the construct as a measurement device or protocol as well as validating or extending the construct. The interpretation here is that there is a need and opportunity to explore the predictive value of cognitive presence in terms of things such as learning outcomes. A similar opportunity exists to use shared metacognition as a treatment variable to study the quality of the inquiry process and learning outcomes. In general, there needs to be more research associated with learning. In this regard, the constructs of cognitive presence

and shared metacognition in the context of a community of inquiry could be very interesting and productive areas for new lines of research.

Notwithstanding the need for more research associated with learning, leadership has been shown to be a crucial responsibility for the success of a worthwhile learning experience. It is to the challenge of providing teaching presence and its role in providing leadership in a community of academic inquiry that we turn to next.

## Chapter 6

# Teaching Presence

The online and blended learning environment increases access and extends interaction. To be constrained by the closed traditional classroom is to ignore the capabilities and potential of e-learning. While it is clear that the communication technologies associated with online and blended learning provide enormous opportunities and choice for connection and reflection, it also presents significant challenges associated with designing and delivering a meaningful and worthwhile educational experience. The educational opportunities of the Internet and communication technologies present choices that require informed leadership if learning is to be purposeful and developmental. Implicit in this is the need to rethink the purpose, approach and nature of the educational transaction.

The expanded connectivity of e-learning has seen a shift toward collaborative constructivist approaches associated with critical thinking and discourse. This is a learnING-centered approach rather than a learnER-centered approach. From an educational perspective, this distinction is more than a subtlety or nuance. Education is a collaborative process where educators and students have important shared responsibilities. The focus is on learning but not just whatever interests the learner (a risk of the Internet). An educational experience is intended to focus on learning experiences that have societal value as well as the ability for the individual to grow and continue learning. To focus excessively on learner interests (learner-centered approach) risks marginalizing the important educational responsibilities of a knowledgeable teacher. In an educational experience, both the learner and educator are integral participants in the learning process. The role and responsibility of teaching presence is to monitor and manage the transactional balance, and by engaging the learners, collaboratively guide the process of achieving worthwhile and intended learning outcomes in a timely manner.

Dewey (1938) addressed the need for purpose, structure and leadership. The educator must establish aims and activities while not being straight-jacketed by them. In this regard, the educational leader must be focused but flexible as inquiry unfolds and new questions arise. The educational leader must be knowledgeable from both a content and pedagogical perspective

while being comfortable with uncertainty. Accepting of uncertainty as a natural dynamic of a worthwhile educational experience allows the educator to adjust to the needs of the learners while considering the purposeful nature of the learning experience. In this regard, Dewey (1933) stated, "thought needs careful and attentive educational direction" (p. 22). Dewey (1938) also recognized that this required developing appropriate social relationships and the social environment of the learning community. As such, teaching presence is an enormously important but complex responsibility that requires sustained adjustment.

Learning-centered approaches are more than simply re-assigning responsibility and control to the learner. This is a violation of the intent and integrity of an educational experience and the responsibility to design, facilitate and direct a constructive learning process. Teaching presence performs an essential role in identifying relevant societal knowledge, creating learning experiences that facilitate reflection and discourse, and diagnosing learning outcomes. In an online learning environment this is both easier and more difficult. It is easier in the sense that the e-learning medium supports sustained and reflective dialogue. However, it is more difficult in that online learning has distinctive communication characteristics that require new approaches and adjustments. In particular, it demands a collaborative approach that recognizes and encourages the assumption and development of teaching presence in all the participants.

To establish appropriate teaching presence, it is necessary to go beyond a list of best practices or techniques for e-learning. More effort and creativity must go into understanding and appreciating the integrating element of teaching presence to facilitate critical thinking and higher-order learning outcomes within a collaborative e-learning context.

## **Roles and Functions**

The core principles and responsibilities of an educational transaction are translatable to online learning environments. While effective teaching can take different forms, principles such as clear expectations, critical discourse, and diagnosis of misconceptions are common to face-to-face and online learning environments. The responsibilities of teaching in any context are complex and multi-faceted. They include being a subject matter expert, an educational designer, a facilitator and a teacher. However, as has been noted, the liberating frame of e-learning significantly alters how the multi-faceted teaching presence responsibilities are realized in supporting collaborative thinking and learning. As a result of the complexities associated with online and blended learning environments, teaching presence provides the essential unifying element to achieve intended learning outcomes in virtual and collaborative settings.

There is consistency in the literature as to what constitutes teaching responsibilities in higher education (see Table 6.1). Although there is some

**Table 6.1** Teaching Roles in E-Learning

<i>Anderson et al.</i>	<i>Berge</i>	<i>Paulsen</i>	<i>Mason</i>
Instructional design and organization	Managerial	Organizational	Organizational
Facilitation	Social	Social	Social
Direct instruction	Pedagogical	Intellectual	Intellectual
	Technical		

shifting of roles across the categories, there is a close mapping of the classification schemes associated with teaching in higher education and the categories of teaching presence hypothesized in the CoI framework. While the responsibilities are reasonably intuitive, they also have empirical support (Anderson, Rourke, Garrison & Archer, 2001; Arbaugh, Cleveland-Innes, Diaz, Garrison, Ice, Richardson, Shea & Swan, 2008; Arbaugh & Hwang, 2006). The intuitiveness and consistency of these responsibilities provide confidence and understanding upon which to further explore and explicate teaching presence in online and blended learning environments.

As noted in Table 6.1, the educator's roles fall into three primary categories: design and organization, facilitation and direct instruction. Consistent with this, teaching presence has been defined as "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" (Anderson et al., 2001, p. 5). Considering the central function of teaching presence, there should be no doubt of the essential role teaching presence plays in integrating the various elements of an educational experience made ever more challenging in a collaborative e-learning environment. Before describing each of the categories of teaching presence, it should be emphasized that teaching presence is what participants do to create a community of inquiry that includes both cognitive and social presence. Therefore, the focus is on the roles of an educator or the actual functions that a teacher must perform to create and maintain a dynamic collaborative learning environment. These functions are integrative in the sense that teaching presence must bring together the cognitive and social in purposeful and synergistic ways. It should be recognized that there is appropriately a cognitive bias in terms of educational purpose but social presence is an ever present and necessary mediating element to collaboratively achieve the intended goals.

Identifying more precisely indicators and corresponding examples for each of the teaching presence categories can provide useful guidelines, especially for those less familiar with online and blended learning approaches. Detailed descriptions of each of the three categories of teaching presence follow.

## Design and Organization

Design and organization has to do with macro-level structure and process. Perhaps not surprisingly, the design and organization of an online or blended learning course is, at least initially, more demanding than the design and organization of a similar face-to-face classroom environment. This is due, first, to the technology and the need for educators to design approaches to teaching and learning that maximize the potential of online and blended learning (i.e. sustained collaboration). Second, the entire course architecture and content must be determined well before the launch of the course. This requires considerably more investment of time and expertise on the front end of a course of study. It is no longer possible to determine what to present just before the class is scheduled. Finally, the design may be a considerable undertaking for those who have only had experience delivering a course via lecturing. For these individuals, they first need to understand the design possibilities and adjustments required for an online community of inquiry. This will likely be further compounded by the fact that students may not have experienced an online or blended learning course and new expectations and behaviors will be required.

Building the curriculum is made more complex by having to deal with the apparent contradiction of having to both increase and decrease content. That is, content is increased in the sense of providing links to other sites that may include important learning objects or supplementary material; and decreased in the sense that it must be sufficiently focused to stimulate and support meaningful reflection and discourse. In conjunction with this simultaneous broadening and channeling of course content is the crucial task of selecting collaborative activities and assignments. It is here that an understanding of the possibilities of online learning intersects with the actual teaching and learning transaction. The design work at the front end of a course of studies will pay considerable dividends during the course of study. It will not, however, preclude having to make important design decisions throughout the inquiry process. Table 6.2 provides the design indicators along with exemplars.

The Community of Inquiry (CoI) framework provides the structure in terms of design and organization for a worthwhile educational experience. The difference is that design emphasizes the structural decisions made before the process begins while organization refers to similar decisions that are made to adjust to changes during the educational transaction (*in situ* design). Organizational comments reflect the flexible and non-prescriptive nature of an educational experience. The structural template is created with the expectation that specific issues and needs will inevitably arise that will necessitate organizational changes in the course of action.

The exploratory nature of a community of inquiry places an increased reliance on organizational issues. The indeterminate nature of the development of

**Table 6.2 Instructional Design and Organization Indicators**

Indicators	Examples
Setting curriculum	"This week we will be discussing ..."
Designing methods	"I am going to divide you into groups, and you will debate ..."
Establishing time parameters	"Please post a message by Friday..."
Utilizing medium effectively	"Try to address issues that others have raised when you post."
Establishing netiquette	"Keep your messages short."
Making macro-level comments about course content	"This discussion is intended to give you a broad set of tools/skills which you will be able to use in deciding when and how to use different research techniques."

knowledge introduces a degree of uncertainty into the design process and, therefore, a need for flexibility. If online and blended learning is to be a collaborative constructivist process, then students must have influence in what is studied and how it is approached. Therefore, design should not be separated from delivery. It continues in the guise of organizational responsibilities and, as such, there is a need to ensuring continuity from the design to the organization phase. This is best accomplished when both design and organization allows for effective responsiveness to developing needs and appropriate learning activities.

## Facilitating Discourse

The second element of teaching presence, facilitating reflection and discourse for the purpose of building understanding, goes to the heart of the learning experience. Facilitating discourse recognizes the purpose of a community of inquiry as enabling and encouraging the construction of personal meaning as well as collaboratively shaping and confirming mutual understanding. This element represents the fusion of purpose, process and product. That is, it is where interest, engagement and learning converge.

Teaching presence plays an essential role in facilitating discourse in a learning experience. Managing and monitoring discourse in an online learning environment is no less important than in facilitating face-to-face discussions. The reflective and rigorous nature of text-based communication demands serious commitment but presents additional opportunities for reflection and engagement. To sustain this commitment and encourage quality contributions requires that the discourse be focused and constructive. Inherent to the

open nature of inquiry the paradoxical role of the facilitator must also be noted in that facilitation “aims both at changing and preserving the system, attempts both to exert and not exert control, and teaches by not teaching” (Kennedy & Kennedy, 2010, p. 12). Facilitation is an enormously important and challenging responsibility.

Teaching presence responsibilities require sustained attention to a broad range of issues. The overriding concern is to establish and sustain the learning community to ensure progression toward educational goals. This demands attention to both cognitive and social presence concerns. Postings must be monitored and the nature and timing of responses must be considered. In addition, the community must be somewhat self-sustaining and self-correcting; in particular, too little or too much teaching presence may adversely affect the discourse and the process of building understanding. It has been shown that high levels of teaching presence can reduce participation and knowledge construction (Zhao & Sullivan, 2016). While maintaining a balance of teaching presence, teacher postings must model critical discourse while shaping the discussion to achieve purposeful goals. Guidance is also required to engage less responsive students as well as curtail the exuberance of those who will inevitably try to dominate the discussion. These skills are not so different from facilitating a face-to-face discussion.

Engagement is not to simply encourage or reward prolific responses. Teaching presence must encourage appropriate and relevant responses by bringing attention to well-reasoned responses and making linkages to previous responses. Participants must feel the discussion is moving in a purposeful direction and in a timely manner. At some point, the threads of the discussion need to be brought together and shared understanding explicitly articulated. All of this requires more than a “guide on the side” but less than a “sage on the stage.” That is, the teacher must negotiate something more substantial than a rambling conversation yet not simply provide a prescriptive summary of the topics discussed. When students take responsibility to collaboratively construct and confirm understanding, teaching presence has found the appropriate balance of control. Indicators and examples of facilitating discourse are shown in Table 6.3.

Facilitating discourse for purposes of building understanding involves pedagogical understanding, disciplinary expertise, interpersonal guidance, and organizational direction. Teaching presence must be as concerned with cognitive development as with a positive learning environment, and it must see content, cognition and context as integral parts of the whole. However, opportunity should be provided for interaction that is primarily social and generally off-limits to the teacher. This can effectively be supported in a chat room. Mainstream purposeful discourse is more complex and embeds both cognitive and social elements. This is where the full responsibility of facilitation comes to bear.

**Table 6.3 Facilitating Discourse Indicators**

Indicators	Examples
Identifying areas of agreement/disagreement	“Joe, Mary has provided a compelling counter-example to your hypothesis. Would you care to respond?”
Seeking to reach consensus/understanding	“I think Joe and Mary are saying essentially the same thing.”
Encouraging, acknowledging or reinforcing student contributions	“Thank you for your insightful comments.”
Setting climate for learning	“Don’t feel self-conscious about ‘thinking out loud’ on the forum. This is a place to try out ideas after all.”
Drawing in participants, prompting discussion	“Any thoughts on this issue?” “Anyone care to comment?”
Assess the efficacy of the process	“I think we’re getting a little off track here.”

## Direct Instruction

Direct instruction is associated with specific content issues such as diagnosing misconceptions. Academic leadership manifests itself in this situation and is often quite specific in nature. Although direct instruction is a legitimate and important authoritative influence, this essential teaching responsibility is often lacking in informal online learning environments. Notwithstanding its inherent leadership limitations, it has been demonstrated that informal online learning environments can demonstrate teaching presence when well designed (Sun, Franklin & Gao, 2015). Distributed teaching presence including efficient shaping of the learning experience are essential aspects of a sustained and worthwhile educational experience. The challenge is not to lose the educational and intellectual climate when direct instruction may be limited. Participants must take on responsibility for moderation to ensure a productive direction.

The need for direct instruction challenges the “guide on the side” concept. While the concept of a guide or facilitator is integral to teaching presence, in and of itself, it is limited as an educational role. It suggests an artificial separation of facilitator and content expert and speaks to the potential distortion of an educational experience if it becomes pathologically focused on student-centeredness to the exclusion of the influence of a pedagogical and content expert. It has been shown that without strong teaching presence students tend to be overly polite but “without sufficiently deep engagement and ... knowledge construction gains” (Joksimović, Gašević, Kovanović, Riecke & Hatala, 2015, p. 650). Such a misguided approach that neglects the need for leadership in purposeful learning environments misinterprets a

collaborative constructivist approach to learning and the importance of systematically building learning experiences (i.e. scaffolding) to achieve intended, higher-order learning experiences.

Teaching presence is not possible without the expertise of a pedagogically experienced and knowledgeable teacher who can identify worthwhile content, organize learning activities, guide the discourse, offer additional sources of information, diagnose misconceptions, and provide conceptual order when required. These are direct and proactive interventions that support an effective and efficient learning experience. Indicators and examples of direct instruction are shown in Table 6.4.

### Evidence and Insights

The evidence attesting to the importance of teaching presence has grown considerably. In this regard, there is strong evidence of the crucial role teaching presence plays in online and blended learning (Akyol & Garrison, 2008; Arbaugh, 2005; Gallego-Arrufat, Gutiérrez-Santiuste & Campaña-Jiménez, 2015; Garrison & Arbaugh, 2007; Garrison & Cleveland-Innes, 2005; Garrison, Cleveland-Innes & Fung, 2010; Gaševic, Adesope, Joksimović & Kovanović, 2015; Meyer, 2003; Pawan, Paulus, Yalcin & Chang, 2003; Richardson, Besser, Koehler, Lim & Strait, 2016; Schrire, 2004; Shea & Bidjerano, 2009a; Shea, Li & Pickett, 2006; Swan & Shih, 2005; Vaughn & Garrison, 2006; Wu & Hiltz, 2004). Research has also consistently reported

**Table 6.4 Direct Instruction Indicators**

Indicators	Examples
Present content/questions	“Bates says...” “What do you think?”
Focus the discussion on specific issues	“I think that’s a dead end. I would ask you to consider...”
Summarize the discussion	“The original question was ... Joe said... Mary said... We concluded that...We still haven’t addressed...”
Confirm understanding through assessment and explanatory feedback	“You’re close, but you didn’t account for...” “...this is important because...”
Diagnose misconceptions	“Remember, Bates is speaking from an administrative perspective, so be careful when you say...”
Inject knowledge from diverse sources, e.g. textbook, articles, internet, personal experiences (includes pointers to resources)	“I was at a conference with Bates once, and he said...” “You can find the proceedings from the conference at <a href="http://www...">http://www...</a> ”
Responding to technical concerns	“If you want to include a hyperlink in your message, you have to ...”

the importance of teaching presence for perceived learning and satisfaction (Akyol & Garrison, 2010b; Akyol, Garrison & Ozden, 2009; Joo, Lim & Kim, 2011; Richardson & Swan, 2003; Swan & Shih, 2005; Yang, Quadir, Chen & Miao, 2016) and for academic performance (Paechter, Maier & Macher, 2010; Joksimović et al., 2015; Yang, Quadir, Chen & Miao, 2016). Furthermore, there is evidence that the attainment of intended learning outcomes rely heavily on teaching presence (Szeto, 2015) and instructor preparation and guidance has been shown to significantly increase the completion of learning tasks (Ma, Han, Yang & Cheng, 2015).

Interaction and discourse play an essential role in a community of inquiry and it has been shown that teaching presence is crucial to ensure participation and quality of responses (An, Shin & Lim, 2009; Bliss & Lawrence, 2009; Gorsky, Caspi, Antonovsky, Blau & Mansur, 2010). Instructors who support and moderate communication were also found to support community development (Brook & Oliver, 2007). In this regard, Shea et al. (2006) concluded that strong teaching presence “is related both to students’ sense of connectedness and learning” (p. 85). Similarly, teaching presence is associated with a sense of community (Ice, Curtis, Phillips & Wells, 2007; Perry & Edwards, 2005; Shea et al., 2006). Design and a shared understanding of the goals have been associated with variables such as engagement and cohesion (Tsiotakis & Jimoyiannis, 2016; Unwin, 2015). Gasevic et al. (2015) demonstrated that design along with expert role facilitation resulted in significantly high levels of cognitive presence. Design was also shown to be important for academic performance (Joksimović et al., 2015). As the evidence pointing to the critical importance of teaching presence continues to grow, it seems increasingly clear that teaching presence is central to purposeful deep and meaningful learning experiences in collaborative learning environments.

The importance of teaching presence for higher levels of cognitive presence has been associated with timely feedback that included the “facilitation of learning and development by providing encouragement and direction [coaching]” (Stein, Wanstreet, Slagle, Trinko & Lutz, 2013, p. 79). Randomly selected treatment and control groups showed that learner-led discussions can promote critical thinking and responsibility for learning if “continuously coached and provided with feedback in teaching presence and social presence ... compared to members of an un-coached group” (Stein et al., 2013, p. 83). This study also concluded that this is congruent with predictions of the CoI framework. Similarly, it has been shown that the teaching presence role to scaffold discussion strategies can facilitate cognitive presence and critical thinking (Darabi, Arrastia, Nelson, Cornille & Liang, 2011). Scaffolding teacher presence in the form of shared regulation in student-led discussions has also shown a higher effect on cognitive presence (Gaševic et al., 2015).

Notwithstanding the central importance of teaching presence, the interdependence of all the presences must be recognized and addressed. A recent

study looked at the importance of teaching presence by comparing undergraduate and graduate students (Sheridan, Kelly & Bentz, 2013). They found all the teaching presence dimensions were important and there was no difference between undergraduate and graduate students in terms of importance. What was most interesting, however, was the importance of instructor disposition (social-emotional). The insight was to have an instructor that is understanding, flexible and helpful and who can project themselves into the learning environment. A similar insight was also reported in terms of the importance of encouragement and affirmation in addition to practices associated with design and facilitation (Wisneski, Ozogul & Bichelmeyer, 2015). This explains the finding that teaching presence is largely responsible for both social and cognitive presence (Joksimović et al., 2015; Savvidou, 2013; Rubin & Fernandes, 2013) and reinforces the core assumption of a community of inquiry that teaching presence must consider both cognitive and social presence.

The importance of concurrently considering all three presences was revealed in a study by Clarke and Bartholomew (2014) who took an in-depth look at teaching presence. It was found that students favored instructors who balanced their comments across all three presences. However, the important message here is that for discourse to move through the inquiry process, teaching presence must exhibit a balance between facilitation and more directive input. The conclusion of Clarke and Bartholomew (2014) was that instructor participation in online discussions is a balancing act that requires careful thought and action. In this regard, we must keep the academic goals clear through facilitation and direction while maintaining social presence through encouragement. Therefore, if asynchronous online discussions are to be more than chat rooms, then the nature of instructional leadership is crucial—interaction is not enough (Garrison & Cleveland-Innes, 2005). Teaching presence, which includes strong leadership, is crucial to achieve intended academic goals. The study of deep and meaningful learning suggests “that neither social presence alone nor the surface exchange of information can create the environment and climate for deep approaches to learning and meaningful educational exchanges” (Garrison & Cleveland-Innes, 2005, p. 144).

An aspect of teaching presence that has only recently been addressed is in understanding the changes in emphasis of its dimensions over the duration of a course of studies. Insight into this phenomenon was initially reported by Vaughan and Garrison (2006) when they found that design and facilitation comments decreased over time while direct instruction comments increased considerably. This pattern was confirmed when it was found that direct instruction increased significantly over time (Akyol & Garrison, 2008). The caveat is that direct instruction must not limit student participation and assuming increased responsibility. The dynamic nature of teaching presence must not be lost as the complexity of balancing facilitation and direct instruction over time presents a special challenge (Rienties, Giesbers, Tempelaar &

Lygo-Baker, 2013). As with social and cognitive presence, more research is required into the dynamics of all the presences as a course develops over time. This dynamic variation of the presences is complicated by a range of contextual factors that include student characteristics, disciplinary challenges and communication technologies.

The teaching presence construct has been confirmed through both qualitative and quantitative studies (Anderson et al., 2001; Garrison & Arbaugh, 2007; Arbaugh et al., 2008; Ke, 2010). However, a question has been raised as to the dimensional structure of teaching presence. Shea et al. (2006) conducted a factor analysis of over 2,000 college students and concluded a two-factor solution was most interpretable. The students apparently were able to only distinguish between facilitation and direct instruction. On the other hand, another study suggested that students may view design and direct instruction similarly (Arbaugh et al., 2008). While these studies raise questions about the original definition of teaching presence, they provide an important insight. The results can be explained from two perspectives. First, teaching presence dimensions are interdependent variables and, therefore, there are situations where the overlap may cloud the distinction. Second, and perhaps more importantly, the characteristics of this sample of students may be that they were not able to fully appreciate the distinction among the responsibilities associated with teaching presence. That is, considering their educational development, they may not have the pedagogical understanding to distinguish the dimensions of teaching presence. Considering these explanations, it may not be surprising that there were difficulties in identifying the dimensions.

One of the most important areas of research and application of the CoI framework has to do with using it as a template to design courses and programs. Befus (2016) conducted a thematic synthesis of the CoI framework and stated that “Researchers, instructional designers, learning strategists, and practitioners have found the CoI framework to be a pragmatic and valid tool upon which to structure rich online and blended courses and empirical studies” (p. 23). Added to this, it has been shown that students value clear course requirements (Saritas, 2008; Sheridan & Kelly, 2010) and this is associated with students’ perceived likelihood of success (Kupczynski, Ice, Wiesenmeyer & McCluskey, 2010). Similarly, the importance of design to ensure an active role for the participants has been revealed in terms of the construction of knowledge (Lai, 2015).

There are a growing number of examples of the use of the CoI framework to design and assess course development initiatives (Ice, Gibson, Boston & Becher, 2011; Kumar, Dawson, Black, Cavanaugh & Sessums, 2011; Moore & Shelton, 2013; Rubin & Fernandes, 2013). At the heart of the use of the CoI framework to design and assess a course is the intention to build and sustain collaborative presence. In this regard, Swan, Day, Bogle and Matthews (2014) have used the CoI survey instrument to assess course implementation and have found “significant increases in student learning outcomes” (p. 79).

A study by Yang, Quadir, Chen and Miao (2016) has noted the importance of cognitive presence design for predicting both subjective and objective learning outcomes. The use of the CoI framework for design has also been used to develop courses at the secondary school level (Jackson, Jackson & Chambers, 2013).

Another promising use of the CoI framework for design purposes is in professional development. The first professional development initiative that was designed around the CoI framework was provided by Vaughan and Garrison (2006). The goal was to have faculty learn how to design a community of inquiry by experiencing a professional development community of inquiry. This proved to be successful as faculty learned to think collaboratively and share ideas in a trusting environment. This worked particularly well in a multi-disciplinary setting that allowed the participants to consider a wider range of possibilities and with peer support they believed they could be successful.

Finally, considering the importance of teaching presence, it is a bit surprising that it has been reported that this is the least studied presence (Befus, 2016). There is much still to understand from both a theoretical and practical perspective regarding teaching presence and its interaction with the social and cognitive presences in a dynamic community of inquiry (Richardson et al., 2016). Research approaches must also use both qualitative and quantitative analyses if we are to fully understand the full range of teaching presence behaviors and their relationship to social and cognitive presence mapped over time. Using the CoI framework to guide the design of online and blended courses and programs (not to mention face-to-face learning experiences) may well be the lasting pragmatic legacy of this research.

## Conclusion

The dimensions of teaching presence provide a template that can be of considerable value to designing, facilitating and directing a collaborative learning experience. Notwithstanding the essential role of the educator, it needs to be emphasized that in the CoI framework, all participants have the opportunity to contribute to teaching presence. Teaching presence “is a distributed responsibility in that all participants are required to actively engage in shaping the thinking and learning experience congruent with their ability” (Garrison, 2016, p. 77). Moreover, if the ultimate goal is to continue to learn, students must be supported to develop metacognitive awareness and regulative abilities as they take responsibility to manage and monitor their learning. As participants develop cognitively and socially, the more distributed teaching presence becomes.

To this point, we have provided the framework and elements of a deep and meaningful learning experience. We have not attempted to identify principles or suggest specific guidelines with regard to the practice of

e-learning. This means recognizing the possibilities for creating communities of inquiry where thinking and learning collaboratively can be sustained over time. The full potential of an e-learning community of inquiry requires a full understanding of new and emerging information and communication technologies. It is these technologies that have reshaped society and are transforming educational approaches to learning.