

Chapter 3

Community of Inquiry

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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 (Col) 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 Col 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, Erdogdu, 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 Col 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 Col framework has and is having with regard to e-learning.

More specifically, the Col 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 presence.

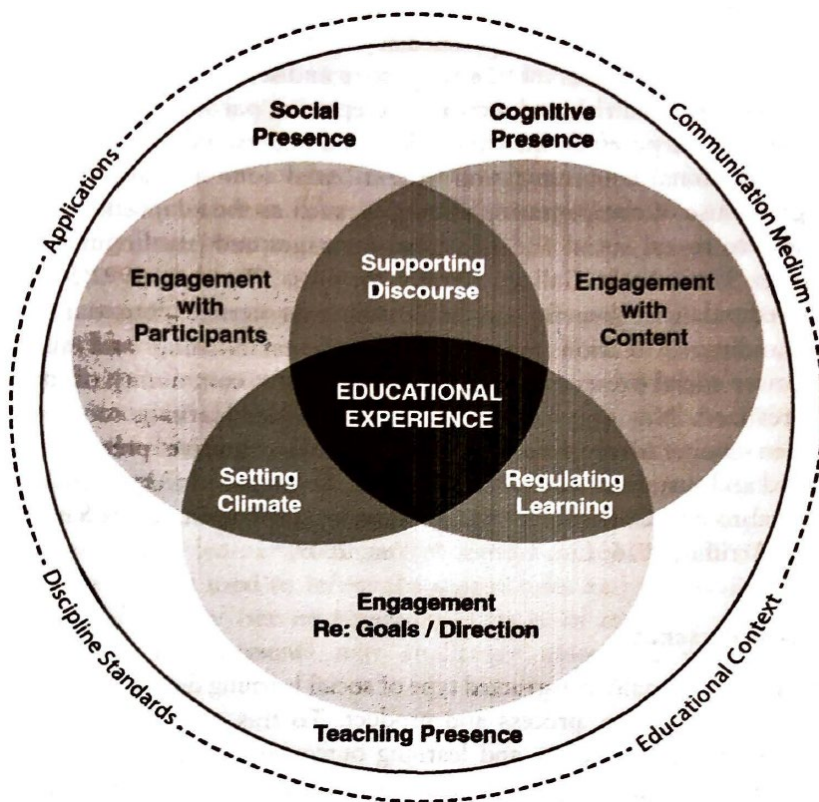


Figure 3.1 Community of Inquiry Framework

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 pressure 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 (Gutierrez-Santiuste & Gallego-Arrufat, in press; Walther, 1992). Compensating redundancies benefit communication that carries potential for mis-understanding. 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; Gutierrez-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 teaching 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 have 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 Col 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 Col 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 / 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	Applying 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 Col framework focuses on the active and creative engagement of learners to think and learn collaboratively.

The Col 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 Col 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 Col 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 Col 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 Col survey questionnaire concluded, "factor analysis of multiplicative scores [course and importance ratings], supported the Col model's tripartite structure" (Diaz et al. 2010, p. 22). More recently and consistent with previous research, a study concluded that the Col 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 Col 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 Col framework and provided new insights. The Col 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 Col 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 Col 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 Col 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 Col 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 (Gutierrez-Santiuste, Sabiote-Rodriguez & 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 activity to direct instruction as students required specific input regarding content an expectation. 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 Col 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 Col 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 Col framework - that it is a process model. Assigning roles to individuals based on their formal organizational status (e.g. instructor) would undermine the Col 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 Col framework. If we are to preserve the collaborative constructivist premise of the Col 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

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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 Col.

At this point of theoretical development, it is time to raise the question whether the Col framework meets the requisites of a theory. In this regard, the Col 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 Col framework. Moreover, it has been shown that the Col framework as the ability to generate hypotheses and provide the theoretical context to interpret results from rigorous research. Therefore, it is argued that the Col framework meets the test, at a minimum, of a nascent educational theory. When the Col 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 Col 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 Col system over time. To this point, as we shall see in subsequent chapters, there is considerable evidence that the Col 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 Col 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 Col 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 Col framework, they continue to be considered indirect variables for reasons of parsimony.

Considering the previous discussion and the theoretical state of the Col 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 Col 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 Col provides the means to study and understand thinking and learning collaboratively in a community of inquiry. Therefore, we conclude that the Col framework meets the criteria of what constitutes a theory (Dubin, 1978).

Scroll to next page for conclusion

To be clear, much work remains to explore the explanatory power and completeness of the Col 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 Col framework to the Col 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 Col 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 Col 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.