Chapter 16
Community of Inquiry Framework, Digital Technologies, and Student Assessment in Higher Education

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ABSTRACT
A number of educational researchers have stated that assessment drives learning in higher education (Biggs, 1998; Hedberg & Corrent-Agostinho, 1999; Marton & Saljo, 1984; Ramsden, 2003; Thistlethwaite, 2006). Entwistle (2000) indicates that the design of the assessment activity and the associated feedback can influence the type of learning that takes place in a course or program. For example, standardized tests with minimal feedback can lead to memorization and a surface approach to learning while collaborative group projects can encourage dialogue, richer forms of feedback, and deeper modes of learning. The purpose of this chapter is to demonstrate through a research study how the Community of Inquiry framework and digital technologies can be used to support a triad-approach to student assessment in higher education. This approach consisted of integrating self-reflection, peer feedback, and teacher assessment practices in a pre-service teacher education program at a Canadian University.

INTRODUCTION
The Community of Inquiry (CoI) theoretical framework (Garrison, 2011) has been instrumental in helping researchers and practitioners appreciate the core elements of collaborative learning and what it takes to create and sustain collaborative communities. The CoI is a generic framework that directs attention to the process of constructing and confirming deep understanding. The three main elements of the CoI framework are social presence, cognitive presence, and teaching presence. Each of these elements and their overlap must be considered in the design and delivery of
collaborative learning assessment activities and outcomes. Social presence is defined as the ability of participants to identify with the interests of the community (e.g., the course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of participants projecting their individual personalities. The CoI framework is about deep and meaningful learning experiences operationalized through cognitive presence. Cognitive presence is defined in terms of the Practical Inquiry model. Practical inquiry represents phases (problem, exploration, integration, and resolution) of a collaborative-constructive educational experience. The final element, teaching presence, provides the leadership that focuses and sustains a productive collaborative community. Teaching presence is responsible for the design, facilitation and direction of the educational experience (Figure 1).

There has been a shift in the way teachers and researchers think about student learning in higher education, over the last two decades. Instead of characterizing learning as an acquisition process based on teacher transmission, it is now more commonly conceptualized as a process of students actively constructing their own knowledge and skills (Barr & Tagg, 1995; DeCorte, 1996). Students interact with subject concepts, transforming and discussing them with others, in order to internalize meaning and make connections with what they already know. Terms like ‘learning-centered’, which have entered the vocabulary of higher education, are one reflection of this new way of thinking. Even though there is disagreement over the precise definition of a learning-centered approach, the core assumptions are “active engagement in learning and learner responsibility for the management of learning” (Lea, Stephenson & Troy, 2003, p.323).

Despite this shift in conceptions of teaching and learning, a parallel shift in relation to assessment and feedback has been slower to emerge. In higher education, the assessment process is still largely controlled by and seen as the responsibility of teachers; and feedback is still generally conceptualized as a transmission process, even though some educational researchers have challenged this viewpoint (Sadler, 1998; Boud, 2000; Yorke, 2003). Teachers ‘transmit’ feedback messages to students about what is right and wrong in their academic course work, about its strengths and weaknesses, and students use this information to make subsequent improvements.

There are a number of problems with this transmission view of assessment and feedback. Firstly, if the assessment process is exclusively in the hands of teachers, then it is difficult to see how students can become empowered and develop the self-regulation skills needed to prepare them for learning outside higher education institutions and throughout life (Boud, 2000). Secondly, there is an assumption that when teachers transmit feedback information to students these messages are easily decoded and translated into action. Yet, there is strong evidence that feedback messages are often complex and difficult to decipher, and that students require opportunities to actively construct an understanding of them (e.g., through discussion) before they can be used to regulate performance (Ivanic, Clark & Rimmershaw, 2000; Higgins, Hartley & Skelton, 2001). Thirdly,