Adapting the Community of Inquiry Survey for an Online Graduate Program: implications for online programs

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ABSTRACT A cohort-based online professional doctorate program that consisted of both online coursework and research activities was designed using Garrison et al’s community of inquiry (CoI) framework. The evaluation of the program proved a challenge because all existing CoI assessment methods in the past have dealt with online courses, not with online programs. In the absence of a validated instrument for measuring the success of the community of inquiry design at a program level, the CoI survey for online courses was adapted and used with the second cohort of online students (n = 18). This article presents (a) an extension of the construct’s cognitive, teaching, and social presence for online programs, and (b) an instrument to measure student perceptions of a CoI that encompasses asynchronous and synchronous interactions, as well as course-specific and non-course-specific interactions in different learning spaces.

Introduction

The University of Florida has offered an online professional doctorate in Curriculum and Instruction with an emphasis in Educational Technology since fall 2008. The Community of Inquiry (CoI) framework guided the design of online courses and activities in the program (Garrison et al, 2000). This article presents a brief overview of the implementation of this three-year program and focuses on the measurement of the first year of the online program based on the CoI framework. During the first offering and evaluation of the program, it became apparent that the components of the CoI framework, previously proposed and analyzed in online courses, would benefit from being expanded to encompass online interactions in an online program (Kumar et al, 2011). This article attempts to measure student perceptions of online interactions in the first year of the second offering of the online professional doctorate by adapting the CoI survey that was validated by Arbaugh et al (2008). The description of survey development and the results could be useful to educators engaged in online programs guided by the CoI framework and will further provide insight for all those engaged in online teaching and learning or professional doctorates.

Expanding the CoI Framework to an Online Program

The CoI framework proposed by Garrison et al (2000) in online courses comprises teaching presence, cognitive presence and social presence. A brief overview of these three components in online courses and the ways in which these components were conceptually expanded based on our online program is presented in this section.
Teaching Presence

Anderson et al (2001) defined teaching presence as 'the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes' (p. 5). The instructor's presence in the online environment is crucial for student learning, student satisfaction, and for the creation of a community of inquiry (Meyer, 2003; Pickett, & Pelz, 2003; Swan, 2003; Shea et al, 2004; Garrison & Cleveland-Innes, 2005; Arbaugh & Hwang, 2006; Shea et al, 2006; Akyol & Garrison, 2008; Arbaugh, 2007). Teaching presence is essential for the community of inquiry. It includes instructional design and organization, the facilitation of interactions and discourse to build understanding, and direct instruction by the instructor as a subject-matter expert in an online course (Anderson et al, 2001; Garrison & Cleveland-Innes, 2000). More recently Shea, Hayes and Vickers (2010) concluded that teaching presence additionally comprises instructor communication and organization in all aspects of an online course.

The first evaluation of the Doctorate of Education (Ed.D.) program in Educational Technology led us to propose that teaching presence at the program level also encompasses consistent communication between students and faculty members and amongst faculty members about program-level issues, composite mentoring of students across courses, the provision of different types of support for online students, and an understanding of administrative procedures at an institutional level (Kumar et al, 2011). Teaching presence at the program level is more representative of faculty presence, where multiple faculty members teach, interact with, advise, and support online students in online courses and during online interactions outside of those courses.

Social Presence

Social presence in online environments has been defined as the way in which online learners portray themselves as 'real people' in their online interactions in the absence of face-to-face interactions (Garrison et al, 2000, p. 89). Social presence has been described as 'a precondition for a purposeful and worthwhile learning experience' (Garrison & Cleveland-Innes, 2005, p. 135). Researchers have found that it can influence learning outcomes, students' cognitive presence, purposeful communication and group cohesion in online courses (Gunawardena & Zittle, 1997; Richardson & Swan, 2003; Swan, 2003; Arbaugh, 2005; Swan & Shih, 2005; Hughes et al, 2007; Shea & Bidjerano, 2009). The building of social relationships is foundational to the facilitation of social presence (Swan, 2003). This was reflected in the first iteration of the Ed.D. program, where students reported that social presence was strongest at the end of the first year when they met on-campus for a summer session (Kumar et al, 2011). Students were also highly satisfied with asynchronous communications within courses and with monthly required synchronous sessions where faculty members had prior expertise. Students rated unstructured, unmonitored, and ungraded group activities lower (Kumar et al, 2011). These are activities that faculty members in an online program do not always facilitate. Social presence in online programs is also formed in spaces where students socialize outside of online courses, for instance in small groups with similar interests, in social networking sites (e.g. Facebook, LinkedIn), during professional activities (e.g. conferences, webinars) or in professional organizations in the field. These interactions have to be taken into account when measuring social presence in an online program as opposed to an online course.

Cognitive Presence

Cognitive presence, or the construction and application of knowledge through sustained reflection and online discourse (Garrison et al, 2001) is developed in four stages in an online course: the identification of a problem, the individual and collective exploration of the problem, subsequent integration or construction of meaning through exploration, and the application of that meaning to new contexts or resolution (Garrison, 2003). Cognitive presence is influenced both by teaching presence and social presence in an online course (Garrison et al, 2001; Rovai, 2002; Meyer, 2003; Garrison & Cleveland-Innes, 2005; Arnold & Ducate, 2006; Archibald, 2010; Garrison et al, 2010),
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and has been found to be higher in disciplines that foster soft and applied skills (Arbaugh et al, 2010).

In the Ed.D. program, problem definition, exploration, and reflection were facilitated in both asynchronous and synchronous settings, and students were regularly provided with opportunities to apply knowledge and skills from the program in their practice. Cognitive presence was high in the first offering of the program (Kumar et al, 2011). Furthermore, because the online program is a professional doctorate, and because of the structure of online activities, cognitive presence transcended online courses and program interactions as students interacted with each other as well as with colleagues and experts in the field during professional activities and conferences or while using social media (Kumar et al, 2011). The development of cognitive presence takes place in multiple virtual environments in online programs compared to online courses, and students’ interactions in formal and informal environments blur as they begin to interact in non-university-specific learning spaces.

The CoI Framework and Online Program Design

Faculty, social, and cognitive presence were facilitated in all components of the Ed.D. program, which was structured as a cohort-based CoI with intensive faculty support for students. All the faculty members in the Ed.D. program had prior experience with instructional design, online teaching, and the facilitation of online discourse, and many had also taught these topics in their courses. This article focuses on the first year of the program consisting of online courses, virtual synchronous interactions, on-campus experiences, group work, and asynchronous interactions. The following considerations further guided program design.

• **Online courses** in the program were designed to foster teaching, social and cognitive presence through synchronous and asynchronous interactions, opportunities for discourse and reflection, and job-embedded activities for application of course content (Garrison et al, 2001; Ainsworth & Loizou, 2003; Moore & Anderson, 2003; Redmond & Lock, 2006).

• In addition to taking required online courses, students were required to attend monthly real-time synchronous sessions throughout the first year of the program. These sessions were intended to maintain communication outside of courses and provide opportunities for students and faculty to share information related to scholarship and professional events. Faculty modelled a critical approach to the profession during the sessions that were aimed at fostering social, faculty and cognitive presence.

• At the beginning of the program, students were grouped according to their area of specialization in inquiry groups to support social presence and cognitive presence within the larger online community. Students were given opportunities to change and modify these groups throughout their first year in the program. Faculty members were available to inquiry groups and structured activities for group participation.

• At the beginning of their first year, students attended a two-day on-campus orientation and at the end of their first year, they again attended a one-week campus-based experience that was integrated into their summer seminar. The two campus experiences facilitated (a) the building of social relationships among students and with faculty, (b) the development of cognitive presence, expectations and application of the program, and (c) faculty and social presence in person after online interactions.

• Outside of coursework, several asynchronous experiences that fostered faculty-student interaction and social and cognitive presence were integrated into the program design. Students also formed a Facebook group that served as a virtual space that they owned and structured.

Evaluation Methodology

The content analysis of online interactions and social networks have been used to measure CoI in online courses, while survey instruments have been the main methods used to assess student perceptions of teaching, social, and cognitive presence in online courses (Garrison et al, 2001; Rourke et al, 2001; Shea et al, 2003; Arbaugh & Benbunan-Fich, 2006; Arbaugh & Hwang, 2006; Arbaugh et al, 2008; Shea, Hayes, Vickers, Gozza-Cohen et al, 2010). The surveys found in the
literature were developed for online courses and were not representative of teaching and learning in an online program. Existing instruments to measure student perceptions of the CoI framework could therefore not be used for student perceptions of the CoI in this program, because no single course in the program was considered to be representative of the entire program. Further, using the validated CoI survey (Arbaugh et al, 2008) across all the courses with the student cohort would not be representative of other interactions in the program. A survey was created for the first offering of the online Ed.D. program to address the expanded conceptual framework and gather student feedback about teaching presence, social presence and cognitive presence in the program. The survey consisted of three sections – Faculty Instruction and Feedback, Support, Learning Environments and Community-building and Application of Learning and had an internal consistency reliability of .88 (Kumar et al, 2011).

For the second offering of the Ed.D. program, the CoI survey instrument developed by Arbaugh et al (2008) was reviewed and adapted for extending the CoI constructs. The CoI survey was conceptually and empirically validated with a Cronbach’s alpha reliability of .84 (.94 for teaching presence, .91 for social presence, and .95 for cognitive presence) across four higher education institutions (Arbaugh et al, 2008) and later used by researchers across disciplines and with large samples (Shea & Bidjerano, 2009; Arbaugh et al, 2010; Archibald, 2010). Arbaugh et al (2010) reported internal consistency reliabilities of .96 for teaching presence, .91 for social presence and .95 for cognitive presence after using the CoI survey with 1173 students from different disciplines. Items from the original survey instrument that pertained to online courses, but were not applicable to the online Ed.D. program, were excluded for this study, e.g. Item #1 'The instructor clearly communicated important course topics,' or Item #26 'I utilized a variety of information sources to explore problems posed in this course' (Arbaugh et al, 2008, p. 135). The adaptation of other items for a program-level survey and expanded conceptual CoI framework for online programs is described below.

Faculty Presence

This section addressed different aspects of faculty presence in the program. In the USA, the word 'faculty' refers to professors or instructors in a department. Some items involved the change of the word 'instructor' to 'faculty', 'participants' to 'cohort', and 'course' to 'program'. For instance Item #2 in the old survey (Arbaugh et al, 2008, p. 135), ‘The instructor clearly communicated important course goals’ was changed to ‘The faculty clearly communicated program goals for Year 1’. Likewise, Item #7 in the old survey, ‘The instructor helped to keep course participants engaged and participating in productive dialogue’ was reworded to ‘The faculty helped to keep the cohort engaged and participating in productive dialogue in Year 1’. Items specific to the Ed.D. program that encompassed the expanded framework were added to the survey, such as ‘I am satisfied with the instruction and support provided to me for accessing library resources in Year 1’ from the Kumar et al (2011) survey used with the first cohort, and ‘The faculty helped me take advantage of the online environment to assist my learning’, which was reworded from Item #P5 of the teaching presence survey ‘The instructor helped me take advantage of the online environment to assist my learning’ (Arbaugh & Hwang, 2006, p. 14). The internal consistency reliability for the faculty presence section of the survey was high at $\alpha = .93$.

Social Presence

Similar to items in the faculty presence section, social presence items were changed from ‘participants’ to ‘cohort’, and ‘course’ to ‘program’. For example, item #14 from the CoI survey (Arbaugh et al, 2008, p. 135) ‘Getting to know other course participants gave me a sense of belonging in the course’ was changed to ‘Getting to know others in the cohort gave me a sense of belonging in the program’. Given the importance of the communication medium in an online environment to social interactions and student satisfaction (Cleveland-Innes et al, 2007; So & Brush, 2007), items specific to students’ perceived value of different communication media to the building of community and student learning from the first survey used in the program (Kumar et al, 2011) were added to the social presence section. For example, ‘The Elluminate sessions were
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valuable for building community in the cohort’ or ‘I learned a lot from the on-campus orientation session’. The internal consistency reliability for the social presence section of the survey was $\alpha = .91$.

Cognitive Presence

As with faculty and social presence, the wording of items related to cognitive presence specific to an online course were changed, namely, ‘participants’ to ‘cohort’, ‘course’ to ‘program’, and ‘course issues’ or ‘content’ to ‘educational technology’. For example, Item #25 ‘I felt motivated to explore content related questions’ in the Arbaugh et al (2008, p. 135) survey was changed to ‘I felt motivated to explore educational technology related questions’. Cognitive presence in the Ed.D. program involved students’ construction of knowledge through discourse in different learning environments, as well as the sharing and application of that knowledge in their professional practice. Existing questions were reworded to that effect and additional questions in this section were added. For example, Item #34 from the original survey (Arbaugh et al, 2008, p. 135) ‘I can apply the knowledge created in this course to my work or other non-class related activities’ was reworded to ‘I have applied knowledge or skills gained from Year 1 of the Ed.D. program to my practice/work environment’. The internal consistency reliability of this section was .93.

Validation, Data Collection and Analysis

The first version of the survey was validated using a Think Aloud procedure with a student in the Ed.D. program. The student pointed out words that were unclear, suggested changes to specific words, and suggested the addition of context, for example, that the term ‘Year 1’ be added to the top of each page, or within questions to make it clear to students what timeframe was being questioned. Likewise, the student requested that the semester or year (2010 or 2011) be added to items that referred to specific interactions in the program. Orthographic changes to the survey that were suggested by the student were also made.

The revised survey was hosted online in surveymonkey.com and all 18 students (16 female, 2 male) enrolled in the 2nd year of the Ed.D. program were sent an email inviting them to participate. Data collected from 16 students (89%) were imported into SPSS version 20 and analyzed. Analysis included descriptive statistics and internal consistency reliability analysis.

Findings

Faculty Presence

Table I shows the response frequencies, mean and standard deviation for the items that measure faculty presence. Some 90% or more of students agreed (either Strongly Agree or Agree) that faculty helped facilitate productive dialog, helped keep the cohort on task in a way that helped them to learn, and encouraged the cohort to explore new concepts. In terms of feedback, 90% or more of the students agreed that faculty provided them with timely feedback that helped them address their strengths and weaknesses relative to the program goals and objectives.

Students perceived faculty interaction positively in this program. Students agreed (100%) that faculty actions reinforced the development of a sense of community amongst the cohort members. Students also agreed (88%) that faculty helped focus discussion on relevant issues in a way that helped them to learn. Finally, students agreed (88%) that faculty helped them manage their program goals and courses. As noted in prior research (Garrison & Cleveland-Innes, 2005; Archibald, 2010), a successful online learning experience is contingent upon faculty interactions being positively perceived by the online students.
Social Presence

Social presence is a complex construct to measure in online learning spaces as several tools, interactions, and experiences can influence students’ perceptions (Rourke et al, 2001). Table II shows the response frequencies, mean and standard deviation for the items that measure this complex domain. Only about 50% of the students agreed the on-campus orientation session (June 2010) was valuable for building community in the cohort and that they learned a lot from this experience. In contrast, 100% of the students agreed the on-campus summer week in 2011 was valuable for building community in the cohort. More than 75% of the students agreed that the student-created and maintained Facebook group was valuable for building community in the cohort and that they learned a lot from that experience. In terms of synchronous interactions, approximately 94% of the students agreed that the Elluminate sessions were valuable for building community in the cohort and 81% agreed they learned a lot from the experience. Further, 100% of students agreed they were comfortable conversing using an online medium.

A major aspect of social presence is making sure the students feel like they belong in the online program and have meaningful interactions with their peers. More than 85% of the students agreed that getting to know others in the cohort gave them a sense of belonging in the program. Further, more than 80% of the students agreed they were comfortable participating in the cohort discussions, comfortable interacting with peers in the cohort, and comfortable disagreeing with peers while still maintaining a sense of trust. Finally, approximately 75% of the students agreed that learned a lot from their peers in the cohort.

Cognitive Presence

Cognitive presence is the extent to which the students in a community of inquiry are able to construct meaning through communication (Garrison et al, 2001). Table III shows the response frequencies, mean, and standard deviation for the items that measure this domain. In particular, we were concerned with whether the online program was meeting the professional goals of the
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students. More than 90% of the students agreed that the first year of the program has been relevant to their professional goals and has contributed to their professional growth. Further, 100% of the students agreed that the program activities increased their interest and improved their understanding of the field of educational technology, an important goal for the first year of this doctoral program.

<table>
<thead>
<tr>
<th>Item</th>
<th>M</th>
<th>SD*</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting to know others in the cohort gave me a sense of belonging in the program.</td>
<td>4.44</td>
<td>0.727</td>
<td>0</td>
<td>0</td>
<td>12.5</td>
<td>31.3</td>
<td>56.3</td>
</tr>
<tr>
<td>I felt comfortable conversing through the online medium.</td>
<td>4.50</td>
<td>0.516</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>I felt comfortable participating in the cohort discussions.</td>
<td>4.44</td>
<td>0.629</td>
<td>0</td>
<td>0</td>
<td>6.3</td>
<td>43.8</td>
<td>50.0</td>
</tr>
<tr>
<td>I felt comfortable interacting with peers in the cohort.</td>
<td>4.37</td>
<td>0.719</td>
<td>0</td>
<td>0</td>
<td>12.5</td>
<td>37.5</td>
<td>50.0</td>
</tr>
<tr>
<td>I felt comfortable disagreeing with peers while still maintaining a sense of trust.</td>
<td>4.00</td>
<td>0.816</td>
<td>0</td>
<td>6.3</td>
<td>12.5</td>
<td>56.3</td>
<td>25.0</td>
</tr>
<tr>
<td>I felt that my point of view was acknowledged by peers in the cohort.</td>
<td>4.37</td>
<td>0.719</td>
<td>0</td>
<td>0</td>
<td>12.5</td>
<td>37.5</td>
<td>50.0</td>
</tr>
<tr>
<td>Cohort discussions helped me to develop a sense of collaboration.</td>
<td>4.38</td>
<td>0.619</td>
<td>0</td>
<td>0</td>
<td>6.3</td>
<td>50.0</td>
<td>43.8</td>
</tr>
<tr>
<td>The on-campus orientation session (June 2010) was valuable for building community in the cohort.</td>
<td>3.44</td>
<td>1.504</td>
<td>12.5</td>
<td>18.8</td>
<td>18.8</td>
<td>12.5</td>
<td>37.5</td>
</tr>
<tr>
<td>Interactions in the community site were valuable for building community in the cohort.</td>
<td>3.19</td>
<td>0.981</td>
<td>0</td>
<td>25.0</td>
<td>43.8</td>
<td>18.8</td>
<td>12.5</td>
</tr>
<tr>
<td>The Elluminate sessions were valuable for building community in the cohort.</td>
<td>4.38</td>
<td>0.619</td>
<td>0</td>
<td>0</td>
<td>6.3</td>
<td>50.0</td>
<td>43.8</td>
</tr>
<tr>
<td>The inquiry group interactions were valuable for building community in the cohort.</td>
<td>4.40</td>
<td>0.910</td>
<td>0</td>
<td>6.3</td>
<td>6.3</td>
<td>25.0</td>
<td>56.3</td>
</tr>
<tr>
<td>The on-campus summer week 2011 was valuable for building community in the cohort.</td>
<td>4.88</td>
<td>0.342</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12.5</td>
<td>87.5</td>
</tr>
<tr>
<td>The student-created Facebook group was valuable for building community in the cohort.</td>
<td>4.50</td>
<td>0.966</td>
<td>0</td>
<td>6.3</td>
<td>12.5</td>
<td>6.3</td>
<td>75.0</td>
</tr>
<tr>
<td>I learned a lot from my peers in the Ed.D. cohort.</td>
<td>4.06</td>
<td>1.063</td>
<td>0</td>
<td>12.5</td>
<td>12.5</td>
<td>31.3</td>
<td>43.8</td>
</tr>
<tr>
<td>I learned a lot from the on-campus orientation session (June 2010).</td>
<td>3.63</td>
<td>1.204</td>
<td>6.3</td>
<td>6.3</td>
<td>37.5</td>
<td>18.8</td>
<td>31.3</td>
</tr>
<tr>
<td>I learned a lot from the Elluminate sessions.</td>
<td>4.25</td>
<td>0.775</td>
<td>0</td>
<td>0</td>
<td>18.8</td>
<td>37.5</td>
<td>43.8</td>
</tr>
<tr>
<td>I learned a lot from my interactions in the inquiry groups.</td>
<td>4.13</td>
<td>0.806</td>
<td>0</td>
<td>0</td>
<td>25.0</td>
<td>37.5</td>
<td>37.5</td>
</tr>
<tr>
<td>I learned a lot during the on-campus summer week 2011.</td>
<td>4.94</td>
<td>0.250</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6.3</td>
<td>93.8</td>
</tr>
<tr>
<td>I learned a lot from the student-created Facebook group.</td>
<td>4.37</td>
<td>1.025</td>
<td>0</td>
<td>6.3</td>
<td>18.8</td>
<td>6.3</td>
<td>68.8</td>
</tr>
</tbody>
</table>

M = Mean; SD* = Standard deviation; SD = Strongly disagree; D = Disagree; N = Neither agree nor disagree; A = Agree; SA = Strongly agree.

Table II. Social presence descriptive statistics.

Equally important, students expressed an appreciation of different perspectives (88%), felt motivated to explore educational technology related questions (94%), and applied knowledge or skills gained from the program to their practice/work environment (81%). In this program, we are particularly concerned with students applying the knowledge and skills they gain in the program to their professional practice. Some 94% of the students agreed that they have shared knowledge or skills gained in the program with their peers or colleagues outside the program. Further, 88% of the students agreed that they have changed their approach to work responsibilities, and 100% agreed that they have a better understanding of their role as an educational practitioner, which is a goal of the online program.
Program activities increased my interest in the field of educational technology.

I felt motivated to explore educational technology related questions.

Cohort discussions were valuable in helping me appreciate different perspectives.

Combining new information helped me answer questions raised during program activities.

Learning activities in the program helped me construct explanations/solutions.

Reflection on content and discussions helped me understand fundamental concepts.

Courses and program activities in Year 1 have improved my understanding of the field of educational technology.

Courses and program activities in Year 1 have improved my understanding of research.

I have applied knowledge or skills gained from Year 1 of the program to my practice/work environment.

I have shared knowledge or skills gained during Year 1 of the program with my peers or colleagues outside the doctoral program.

Following my participation in Year 1 of the program, I have changed how I approach my work responsibilities.

Following my participation in Year 1 of the program, I have a better understanding of my role as an educational practitioner.

Year 1 of the Ed.D. program has been relevant to my professional goals.

Year 1 of the Ed.D. program has contributed to my professional growth.

Table III. Cognitive presence descriptive statistics.

Discussion and Significance for Online Programs

More than a decade after the landmark report titled *What’s the Difference?: a review of contemporary research on the effectiveness of distance learning in higher education* (Merisotis & Phipps, 1999), we are still struggling with one of the primary recommendations of this report. As noted by Merisotis and Phipps (1999), ‘a major gap in the research is the lack of studies dedicated to measuring the effectiveness of total academic programs taught using distance learning’ (p. 23). That is, the vast majority of the research published on the topic of distance education has focused on individual courses as opposed to full academic programs. In distinction, this research attempts to measure student perceptions of an academic program by adapting an existing valid and reliable survey strongly grounded in educational theory (CoI). This research has considerable significance in the current academic climate where an increasing number of higher education institutions are developing and offering online programs (Allen & Seaman, 2010). Similar to the research on distance learning, research on the CoI framework has focused on individual courses within programs, not on online programs. The application and evaluation of an expanded CoI framework in a program, as opposed to its application in a course, is a contribution of this research to the field.

The research reported in this article was conducted in a cohort-based professional doctorate in educational technology and cannot be generalized to all online programs in all disciplines at all levels of higher education. Further, we can only provide minimal evidence of validity and reliability of our expanded CoI survey tool. This tool, similar to the CoI survey (Arbaugh et al, 2008), relies on student self-reports in the survey, thus assessing their perceptions of teaching, cognitive and social presence. It does not attempt to measure such presence by analyzing online interactions in...
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the community of inquiry. Nevertheless, the results point to the potential value of expanding the CoI framework to conceptualize, implement, and evaluate online programs. As such, our results demonstrate some interesting findings related to the expanding of the CoI framework to faculty, cognitive and social presence in online programs and the accompanying challenges for measuring CoI in online programs.

In online courses, according to Anderson et al (2001), faculty members are responsible for direct instruction of subject matter, facilitating the online experience to include productive dialog with students, timely feedback, exploration of new concepts, and structuring the tasks in the program in such a way to help students learn and meet their professional goals. In an online program there should be clarity of program goals, directions and structure amongst faculty and students. While this is best achieved by having strong leadership or one faculty member responsible for a program (Redmond & Lock, 2006), it is important for all faculty to represent a common goal, provide consistent messages, and adhere to common expectations and standards with students. Furthermore, graduate students need support with research skills and academic writing as well as mentoring that helps them leverage the opportunities presented by professional organizations, conferences, and networking in their chosen field. These goals of an online graduate program are not restricted to coursework and often take place at other times and in other media when faculty and students interact individually or in smaller groups. Faculty presence includes the instructional design and organization of a program, not just an online course; direct instruction and the facilitation of program interactions about topics that transcend course content and that take place in multiple virtual spaces not restricted to online courses; instructional, administrative, and research support; communication about program issues; and the development of habits of mind in that profession or discipline writ large. These areas were rated with a mean (M) of 4.25 and above by students in our online program.

Social presence or the sense of community that develops among students is important in an online course but can be crucial in an online program for improved student retention and connection to the academic institution. In a CoI, students should feel comfortable communicating through an online medium (e.g. discussion boards or virtual classrooms) and should be comfortable giving and receiving feedback from their peers (Swan & Shih, 2005). Multiple communication media (asynchronous, synchronous, formal and informal) should therefore be provided for the building of social presence in case students are unfamiliar with online communication (Cleveland-Innes et al, 2007). In an online program, interactions among program participants transcend coursework to also take place in social networks such as Facebook or LinkedIn and occasionally, during face-to-face meetings in the program or at professional events. Additionally, program participants often interact with external experts about academic content, research, and professional application of their learning. While it is important for programs to intentionally build these types of experiences inside and outside of courses to ensure productive scholarly dialog, non-course-specific interactions among program participants are bound to occur at some point due to the increasing ubiquity of social media. It is therefore imperative to expand the concept of social presence in an online program to such interactions and for researchers to explore how such interactions might be measured. Notwithstanding our best efforts to structure synchronous, asynchronous and small group interactions for program participants’ scholarly development outside of their online coursework, they rated their Facebook group as only second (M = 4.5) to the face-to-face summer session (M = 4.88) as valuable for building community and learning.

When measuring social presence, the time taken to build social presence among a group of learners and the role of different communication media has to be considered (Cleveland-Innes et al, 2007). In our CoI survey, we attempted to address this aspect of social presence using items specific to the different types and areas of communication (face-to-face sessions, synchronous Elluminate sessions, Facebook interactions) and to when these interactions occurred (e.g. on-campus orientation summer 2010). In our program, students met for a two-day orientation in summer 2010 and then for a week long summer session in 2011. Students reported that the first summer orientation was not that influential in forming bonds with their peers (M = 3.44) compared to the following year’s week-long summer experience that they rated higher (M = 4.88). These results reinforce the conclusion of Cleveland-Innes et al (2007) about the time taken to build community. Students did not know each other and had not interacted much in summer 2010 compared to
summer 2011 when they had taken four courses together and participated in different types of non-course interactions. With respect to measuring social presence, these results highlight the importance of measuring social presence at different points in time in a community of inquiry, and of measuring the value of different communication spaces to the building of social presence. In our online program we used discussion boards, wikis, Google Docs, Facebook, blogs, and virtual classrooms, to name a few technologies not specific to our institution that might also be used by other online programs. Future research in online programs might focus on questions such as – How does using certain social media or technologies over others contribute to the building of community in online programs? Do these technologies or media interact in a way that contributes to or detracts from social presence, cognitive presence, and a student’s sense of belonging in a community of inquiry? These are extremely important considerations for measurement and instruments designed to measure CoI with the growing prevalence of social media. Ultimately researchers will have to address the interactions that are supported by these media, whether in online courses or online programs.

The original CoI framework defined cognitive presence as the construction and application of knowledge through sustained reflection and online discourse (Garrison et al, 2001). Later researchers concluded that cognitive presence is influenced by social and teaching presence and that it varies based on discipline (Arbaugh et al, 2010). Cognitive presence is therefore an important dimension to consider when designing and delivering an online program based on the CoI and measuring outcomes. Researchers should take into account the specific goals and learning objectives of an online course or program and the types of skills, knowledge or application that are envisioned as outcomes. In our online program, we wanted to ensure that content and activities would contribute to students’ professional growth, that students would adopt a research-based approach as educational practitioners and scholars, and that they would apply and change their professional practice using content from the program. Our results with mean ratings over 4.19 for all cognitive presence items suggest that students perceived the first year of the online program as a positive asset to their professional growth in the field of educational technology, and as contributing to their understanding of research, fundamental concepts of the field, and growth as educational practitioners. Items in our CoI survey were targeted specifically at measuring our pre-defined program outcomes, therefore others attempting to use this survey would need to revise those items that are specific to the field of educational technology with outcomes related to their own programs or disciplines.

Conclusion

The rapid increase in the number of online programs in recent years (Allen & Seaman, 2010) makes it important to adapt existing frameworks or develop new approaches to investigate student perceptions and actual behavior in such programs. This research suggests that the CoI framework of teaching, social, and cognitive presence may be useful for facilitating and studying reported interactions in online programs with an expanded role for each of the three components of the framework. It seems a valuable goal to develop a valid and reliable instrument that measures student perceptions of a community of inquiry in online programs. The current instrument developed and validated by Arbaugh et al (2008) and used by Arbaugh et al (2010) and Garrison et al (2010) in online courses provides a starting point for the creation of an instrument appropriate for program-wide surveys.

The survey that was developed and used in this research was very specific to our online professional doctoral program and might be adapted for other academic programs. Nevertheless, it highlights the CoI as a multidimensional construct suitable to online programs and serves as one approach to expand the conceptual framework of faculty, social, and cognitive presence in online programs. In order to consistently utilize these constructs at a program level, existing instruments in the research should be adapted. New instruments may also have to be developed that encompass interactions with multiple instructors and experts, course-specific and non-course-specific interactions that use different media and multiple virtual spaces, and the development and facilitation of multiple types of skills and knowledge.
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