



EVALUATING ONLINE PROGRAMS: ADAPTING THE COMMUNITY OF INQUIRY SURVEY

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Abstract

This paper describes the adaptation of the Community of Inquiry (CoI) survey to evaluate the quality of a cohort-based online graduate program in the United States. The academic activities in this program included both course work and research activities; and based on the CoI framework (Garrison, Anderson, & Archer 2000). The original CoI framework and its assessment were proposed for online *courses*; however, in this particular case an alternative assessment method was necessary. Hence, the CoI survey (Arbaugh et al., 2008) for online courses was adapted and used with the two cohorts of online students ($n = 32$) to measure the success of the community of inquiry design at the program level. The constructs cognitive, teaching, and social presence were thus extended for online programs, which resulted in an instrument to survey 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

Several instruments exist to guide institutions in the assurance and measurement of quality. Higher educational institutions have a strong tradition of using teaching evaluations at the course level (El-Sayed & Burke, 2010). However, program evaluation, which focuses on the measurement of quality during the entire program through overall program goals rather than through the aggregation of single courses and their course outcomes, creates new challenges for academics and program administrators. Measurement of quality within online programs, in particular, online doctoral programs can be problematic. Hence, more instruments and new procedures are needed. This paper describes the adaptation of the Community of Inquiry (CoI) instrument for the purpose of evaluating an online doctoral program.

The online doctoral program in education (curriculum and instruction) offered at a large public university in the United States was begun in 2008. Theories of adult learning (Knowles, 1984) and the Community of Inquiry (CoI) framework (Garrison, Anderson, & Archer, 2000) guided the design of the cohort-based online program that enrolls students who are working professionals in post-secondary, secondary, primary, non-profit, corporate and other educational environments (Kumar, 2014). Program leaders attempted to identify appropriate instruments in the literature for the evaluation of the online program, but existing

instruments did not correspond to the design of the program or to its doctoral nature. Thus, a program-specific survey was created during the first offering and evaluation of the program with a focus on the CoI design and continuous improvement of the program (Kumar, Dawson, Black, Cavanaugh, & Sessums, 2011). The results of the survey and additional interview data made apparent that the CoI framework, proposed in online *courses*, would need to be expanded to describe the interactions in an online *program*. Following the publication of the validated CoI survey (Arbaugh et al., 2008) for online *courses*, this survey was adapted to encompass the different elements of the CoI framework in an online *program* and the specific learning environments used in this specific program. In this paper we describe the expanded CoI framework and the results of this survey with two groups of participants ($n = 32$) in the online doctoral program.

Conceptual Framework: The Community of Inquiry in an Online Program

The CoI framework Garrison, Anderson, and Archer (2000) is a leading conceptual framework comprising teaching presence, social presence and cognitive presence that guides design and research in online courses. The evaluation of the first offering of the online doctoral program that consisted of coursework and seminars followed by independent research with a research mentor (similarly to other US doctoral programs in social sciences) indicated that in an online program, these components can be expanded to faculty presence, social presence and cognitive presence. A brief overview of these three components based on the literature and our initial research is presented in this section.

Faculty Presence

Teaching presence is “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; p.5). It includes instructional design and organization, the facilitation of interactions and discourse to increase learner knowledge and build understanding, provision of feedback and direct instruction by the instructor as a subject-matter expert in an online course (Anderson et al., 2001; Garrison, 2002). Multiple instructors teach in an online program, and although their teaching presence within individual courses is essential as defined by the CoI framework, *faculty* presence is needed for an online program to succeed. The planning and design of a sequence of courses that reflect a learning progression and build towards the program goals; the provision of instruction, feedback and different types of support for online students across courses, learning environments and other activities in an online program in the form of online advising, teaching and mentoring; continual communication amongst instructors and leadership about program-level issues that ensures consistent communication to students; and program leadership and administration that reflects the mission of a program combinedly contribute to *faculty* presence in an online program in addition to individual instructor presence in online courses (Kumar et al., 2011). In a doctoral program, students require guidance with research, writing, and professional development to integrate into professional organizations, conferences, and grant projects in their discipline. In the online doctoral program that is the

subject of this study, students interact with multiple professors during their coursework, examinations, and dissertation research, although they have one research mentor.

Social Presence

In the CoI, social presence in online environments is defined as learners' portrayal of themselves as "real people" in the absence of face-to-face communication online (Garrison et al., 2000; p.89) and is considered essential for learning. Social presence was originally studied in discussion forums, but students in online courses or programs today interact with each other and with their instructors not only within course-specific online spaces such as discussion forums but also in social media and in virtual classrooms. Multiple forms of asynchronous (online discussions, Etherpad, Twitter) and synchronous (e.g. Google Hangout, Adobe Connect) media are used across courses and activities in online programs to help students stay connected with peers and faculty. Social presence in online *programs* is thus formed across multiple environments, both within and across online courses, in small groups that work on projects or have similar interests, in social networking sites (e.g. Facebook), and during practica, internships or other activities (Kumar, 2014). These interactions have to be considered when conceptualizing and measuring social presence in an online program. Moreover, while many of these are content, subject, or task-specific interactions (Remesal & Colomina, 2013) the building of social relationships in these environments is foundational to social presence (Swan, 2003) and to student completion of online programs. Students who feel connected to their peers, instructors and institution are more likely to complete an online course or program (Rovai, 2002).

In the online doctoral program studied here, students participated in asynchronous activities within courses and in a Google group, in monthly synchronous sessions with faculty and peers, and attended yearly 4-day meetings on campus. They interacted in these areas to share and discuss common goals, resources, academic and professional events, research, and their professional growth. The on-campus sessions and a Facebook group helped them build social relationships in addition to content-based interactions. It was thus important to address the different learning environments when evaluating social presence in the program. The cohort model and the building of initial social presence also contribute to peer support and student retention when students work on their dissertations. Interviews conducted after the first offering of the program revealed that students met with peers online, advised each other on research, provided feedback and motivation (Kumar, Johnson, & Hardemon, 2013).

Cognitive Presence

Cognitive presence is defined as the construction and application of knowledge through sustained reflection and online discourse (Garrison, Anderson & Archer, 2001) and is developed through 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, 2002). Cognitive presence is influenced by both social and instructor presence (Garrison et al., 2001; Garrison & Cleveland-Innes, 2005; Rovai, 2002), but the development of cognitive presence in *online*

programs takes place in multiple virtual environments compared to *online courses*. Problem definition, exploration, and reflection are facilitated across courses, seminars, practica and other interactions in both asynchronous and synchronous settings. In an online doctoral program, students also interact with colleagues and experts in the field during professional conferences or on social media, in university-specific and non-university-specific and formal and informal learning environments, making it more difficult to define cognitive presence as an outcome of a specific set of interactions (Kumar & Ritzhaupt, 2014). In the case of the online doctoral program that is the subject of this study, students were encouraged to relate and integrate their doctoral studies into their professional environment, where problem definition, exploration and reflection was connected to a larger research topic and continued throughout the program, across modalities, courses, and learning environments. Cognitive presence was thus defined in the online doctoral program as the successful application of learning to a research problem, challenges in students' professional environments, and transformational learning as a result of participation in the online community of inquiry throughout the program (Kumar et al., 2011).

Program Design

The online doctoral program based on the CoI framework described above is structured as two years of required coursework and activities completed as a cohort, following which students take qualifying exams and work on their dissertations. These initial courses and activities (a) familiarize students with theory and research in educational technology as a discipline because students have diverse backgrounds, work in many educational environments and live in the US and abroad; and (b) facilitate the creation of conceptual frameworks and acquisition of research skills in smaller projects so that students can conduct independent research during the dissertation. All the core professors teaching in the program have doctoral degrees related to instructional or educational technology and at least 5 years of experience teaching online. Faculty, social, and cognitive presence are integral to all components of the program. *Online courses* foster faculty, social and cognitive presence through synchronous and asynchronous interactions, discourse, reflection, and group projects. Monthly *synchronous sessions* facilitate communication and faculty modelling of scholarly thinking about the discipline, research and professional events, while contributing to social and cognitive presence. *Inquiry groups* of 4-6 students share resources, have similar research interests and collaborate to support each other within the larger online community. These groups are initially assigned, but later student-created and student-led, although they have specific goals and activities at various times in the program. An on-campus orientation and two campus experiences over two years help build relationships among students and with faculty, develop cognitive presence, research agendas and program goals, and reinforce faculty and social presence. Finally, *asynchronous experiences* in a Google group foster faculty-student interaction and social and cognitive presence and a student-led Facebook group with no faculty presence assists in the building of social presence. Other additional media (e.g. Twitter, Google Hangouts) and interactions also occur in the online program, as described in the conceptual framework.

Evaluation Methodology

In an attempt to evaluate the initial offering of the program, existing surveys in the literature were not representative of teaching and learning in an online *program*. A survey with an internal consistency reliability of .88 was created to reflect the expanded conceptual framework and assessed student perceptions (n = 16) on faculty presence (Faculty Instruction and Feedback, Cronbach's alpha = .90), social presence (Support, Learning Environments and Community-Building, Cronbach's alpha = .76) and cognitive presence (Application of Learning, Cronbach's alpha = .96) after the first year of the online program (Kumar et al., 2011). Faculty presence and cognitive presence was relatively high with a mean of 3.8 or 3.6 and above on all items (on a likert scale of 1-5). Asynchronous interactions outside required coursework had a low mean rating (2.56 and 3.00) compared to all other elements of social presence that were rated at a mean of 3.8 and above (Kumar et al., 2011). Open-ended feedback from students was used to redesign the program for the next offering.

The Community of Inquiry in the second and third offering of the program was evaluated using an adapted version of the CoI survey instrument developed by Arbaugh et al. (2008). The survey uses a 5-point Likert scale of strongly disagree to strongly agree. In general, the word *instructor* was changed to *faculty*, *participants* to *cohort*, *course* to *program*, and *course issues* or *content* to *educational technology*. For example, item#7 "The instructor helped to keep course participants engaged and participating in productive dialogue" was changed to "The faculty helped to keep the cohort engaged and participating in productive dialogue in Year 1," and item #25 "I felt motivated to explore content related questions" (Arbaugh et al., 2008; p.135) was changed to "I felt motivated to explore educational technology related questions." Items from the first program survey that was created and that encompassed the expanded framework were added to the CoI survey. For example, items about the perceived value of different media environments for community-building and student learning from the first survey were added, such as "I learned a lot from the on-campus orientation session." Likewise, items reflecting students' construction of knowledge through discourse or application of learning were added. The internal consistency reliability was Cronbach's alpha = .93 for faculty presence, Cronbach's alpha = .91 for social presence and Cronbach's alpha = .93 for cognitive presence (Kumar & Ritzhaupt, 2014). All students in two subsequent offerings of the program were invited to participate in the survey during their first year. All eighteen students in Group 1 and 14 of 22 students in Group 2 responded to the survey. Descriptive statistics were applied to analyze data from all 32 survey responses.

Results and Lessons Learned

The results of the survey in the two groups indicated strong faculty presence and cognitive presence. Social presence was found to be stronger in some areas over others. The complete results of the survey are not included here due to space constraints but will be shared during the presentation.

Faculty Presence

The mean rating for all twelve items in the Faculty presence section of the scale was 4.2 and above for group 1 ($n = 18$), indicating a strong and cohesive presence of all instructors in the program. The items “the faculty encouraged the cohort to explore new concepts” and “the faculty provided feedback in a timely fashion” had the highest mean rating of 4.69 ($SD = 0.49$), followed closely by “I learned a lot from the faculty” ($M = 4.62$; $SD = 0.62$). In general, the results indicated that across courses and multiple learning environments, the instructors in the program had facilitated interactions and dialog, provided feedback that helped students understand and address their strengths and weaknesses, and guided students in their management of learning. In group two ($n = 14$), the items about feedback, although high on a scale of 1 to 5, had lower mean ratings than group 1. For example, the item “faculty provided feedback in a timely fashion” had a mean rating of 4.0 ($SD = 1.11$) as did the mean rating for the provision of feedback that helped students understand their strengths and weaknesses. Faculty provision of feedback was rated the lowest for the item “the faculty provided feedback that helped me address my strengths and weaknesses relative to the program's goals and objectives” ($M = 3.79$; $SD = 0.97$). All other areas had mean ratings of 4.14 and higher. The lower mean ratings for certain items of faculty presence in the program were explained by some students in the open-ended response box titled *Optional comments* for the faculty presence section. They specified the courses and curriculum activities in which their experiences had not been the same as others, which were found to be instructors who had not taught in the program earlier. The faculty presence scale was thus helpful in identifying that it is important to orient and educate instructors who are subject-matter experts in an online program about the overall goals and expectations of the entire program. This can ensure consistent quality of teaching, learning and communication in the program.

Social Presence

The survey contained 19 items for social presence that dealt with student's comfort level interacting in the different learning environments, their building of community and their learning in those environments. Students agreed that getting to know their peers gave them a sense of belonging in the program (group 1; $M = 4.44$; $SD = 0.73$ and group 2; $M = 4.92$; $SD = 0.28$), that they were comfortable participating in discussions (group 1; $M = 4.44$; $SD = 0.62$ and group 2; $M = 4.92$; $SD = 0.28$) and interacting with each other (group 1; $M = 4.37$; $SD = 0.72$ and group 2; $M = 5.0$; $SD = 0$), and that these discussions helped to develop a sense of collaboration (group 1; $M = 4.38$; $SD = 0.62$ and group 2; $M = 4.77$; $SD = 0.44$). For several items about the building of community in learning environments, the group 2 mean ratings were higher than group 1's mean ratings for this section of the survey. The asynchronous community space for group 1 was faculty-led and used mainly for providing information and asking questions. Students used this space to communicate with all the instructors about non-course-specific topics. They communicated with each other mainly in their Facebook group. The mean ratings revealed that the community space was less valuable for building community ($M = 3.19$; $SD = 0.98$) than the Facebook group ($M = 4.5$; $SD = 0.97$). Similarly, the on-campus meetings and small group interactions were valued by

students for community-building. In group 2, the faculty-led community space was designed for increased student interaction, therefore the ratings were higher ($M = 4.0$; $SD = 1.08$). Similar to group 1, the Facebook group ($M = 4.92$; $SD = 0.28$) was valued highly for community building, as was the on-campus orientation ($M = 4.85$; $SD = 0.38$). In terms of learning, the on-campus meeting (group 1; $M = 4.94$; $SD = 0.25$ and group 2; $M = 4.54$; $SD = 1.09$) was rated highly by both groups as was the Facebook group (group 1; $M = 4.37$; $SD = 1.03$ and group 2; $M = 4.69$; $SD = 0.48$).

Cognitive presence

Student ratings on cognitive presence in both groups were high. The mean rating for all fourteen items in this section was 4.19 and above for group 1 ($n = 18$) and 4.46 and above for group 2 ($n = 14$). The item “Courses and program activities in year 1 have improved my understanding of research” was rated the highest by both group 1 ($M = 4.69$; $SD = 0.60$) and group 2 ($M = 4.92$; $SD = 0.28$). This was valuable feedback for program leaders because the larger goal of the program was the dissertation and independent research. The mean rating for “Year 1 of the doctoral program has contributed to my professional growth” was also high for both groups (group 1; $M = 4.62$; $SD = 0.619$ and group 2; $M = 4.92$; $SD = 0.28$). Student responses in both groups indicated that program activities and discussions had increased their interest and understanding of the discipline, they were motivated to explore further questions and research, and that the students were applying knowledge and skills gained during the first year in the program in their professional environment, with peers outside the program. The item “cohort discussions were valuable in helping me appreciate different perspectives” had a mean rating of 4.19 in group 1, which is a high rating in itself on a scale of 5, but was the lowest rated item in this section. During follow-up focus groups, students explained that initially they were more focused on the instructor’s responses and perspective, and not on that of their peers, because they considered the instructor the expert in the subject-matter.

Conclusion

In this paper, we provided one example of how the CoI survey can be adapted to evaluate online programs. As indicated in the results of the survey with two groups in an online doctoral program, such a survey can provide insight into areas that are working across a program and areas that need improvement. When students are surveyed about their experience in a complete program – across learning environments, instructors, interactions with peers, and the kinds of activities and feedback they have had – the data collected reveals areas of weakness in the program that need to be addressed but also areas where the program is achieving its goals. Administrators and program leaders can use this data to improve their programs. In addition to collecting course-specific and institution-specific data about online learning, program-specific data is valuable in the evaluation of programs.

Additionally, this research expands on the constructs of teaching presence, cognitive presence and social presence in online courses for online doctoral programs. Cognitive presence was found to also encompass skills and competences that are meant to be developed in a doctoral program. This implies the inclusion and specification of survey items referring to research

skills and discipline-related understandings that are relevant for the professional growth of this particular population. Further, the faculty-led and purposefully designed community-based instructional space had the aim to support interactions among doctoral students and faculty, and it did fulfil its purpose of information sharing; however, it was the student-facilitated Facebook group that succeeded in creating and maintaining robust social presence among the students through the entire length of the program. Social presence was thus experienced through social engagement in a social networking platform (Facebook) designed for that particular purpose – independently from the formal doctoral educational experience. Thus, in addition to instructional design and facilitation strategies for social presence, the nature of technologies used and their purpose can also influence the building of community in an online program. More research is needed on the relationships between faculty presence, social presence and cognitive presence across learning environments in online programs.

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