Finding the Community in Online Education: It's in the Instructors' Eyes

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Abstract: An instructor's teaching presence affects students' feelings of social presence and connectivity in distance education, pointing to an opportunity for intentional orchestrations of class members' social experience. To explore such opportunities, we interviewed instructors about what and how they see community from their online teaching experiences. In this paper, we characterize the presence and nature of the community that instructors see in their distance education classes. We highlighted the strategies instructors used in an online environment that support both synchronous and asynchronous collaborative learning. Design implications for sociable learning environments are discussed.

Introduction

With advances in technology and broadened access to educational resources, university degree programs provided via online delivery have drawn considerable attention and effort, and have been rewarded with regular increases in enrollment (Kena et al., 2015) and comparable achievements in terms of learning outcomes (Shachar & Neumann, 2003). However, distance education continues to suffer from the mere fact of *distance*: separation of instructors and students in terms of time and space leads to feelings of being socially removed from the situation (Guo, Tan, & Cheung, 2010). This social isolation is a major contributor to the retention problems common in online education (Carr, 2000; Tinto, 1975). Ashar and Skenes (1993) suggest that learning goals attract adults *to* an online program, but it is the presence of a social environment that makes them *persist*. Meanwhile, productive social interaction is also necessary for collaborative learning (Clegg et al., 2013), whereas finding communities leads to fuller engagement with the class and dialogue (Brown, 2001).

As a step in a larger project studying community-building in distance education, this study investigated whether and how distance education instructors see evidence of community amongst their students. We started with the experiences and views of teachers because they are central agents in orchestrating online collaborative learning experiences. In the following we discuss how instructors perceive student connections with respect to both their class settings and the host institution, and what this might mean for building community online.

Sociality in online education

Social presence and social interaction are strong predictors of students' learning performance in CSCL (Xing, Kim, & Goggins, 2015). For example, online learners who report higher social belonging also report better learning outcomes (Kizilcec & Halawa, 2015). Furthermore, learners with higher social skills exhibit greater social interaction, which in turn mediates the impact of system functionality on learning (Xing et al., 2015).

Researchers investigating the nature and impacts of social behaviors in CSCL have studied students' perceptions (Shelley, 2008), communication artifacts (Oliver Ferschke, Iris Howley, Gaurav Tomar, Diyi Yang, 2015) and activity logs (Soller, Wiebe, & Lesgold, 2002). For example, discussion posts and chat interactions are often used to enact social behaviors, such as lurking (Mustafaraj & Bu, 2015) and peer support (Appiah-Kubi & Rowland, 2016). To some extent, however, studies of discourse capture only part of the collaboration in an online environment, because the analysis of utterances ignores the larger social context within which a specific interaction takes place. In addition, class-based discourse lasts for only one course, whereas computer-mediated interpersonal connections would typically emerge over longer periods of time (Joseph B Walther, 2002). We seek to add further insight to the question of social behavior in CSCL by first asking what online instructors are observing about student interconnections as well as how they might be promoting this.

As the central coordinators of class-wide activities, online course instructors have the opportunity to promote exchanges among class members, for instance through synchronous or asynchronous interaction during lectures or question and answer, over a considerable period of time, and even across multiple semesters. However, little attention has been paid to whether and how instructor-led activities might affect the sociality of distance education. One counterexample is the reflections of two online professors (Mcelrath & Mcdowell, 2008) who offered suggestions about how to create a supportive environment, including course chats, interactive introductions, and student stories as the examples to illustrate the core concepts. Their work was leveraging Brown's framework for community-building in distance education (Brown, 2001); this work suggests a process of making online acquaintances, gaining community acceptance and experiencing camaraderie. However, this

strand of work focused on text-based asynchronous learning in graduate teaching contexts that involved only experienced online instructors who attended to community building carefully. Along with the general expansion of online technology, we are working toward a more expansive view of how instructors with varying experiences and disciplinary background may be doing to enrich online learners' social experience.

Instructors' beliefs and attitudes about social construction of online learning

Bandura (1993) describes college as a place where teachers' interpretations of students' needs and actions affect the social construction of what is happening in the learning community, including how students perceive their own performance, sense of belonging and expected behaviors. Schools are complex social environments where students share beliefs, fears, values and norms (Hofman, Adriaan Hofman, & Guldemond, 2001), but many of these experiences are guided by the instruction team. For instance, research on distance education has shown that instructors' attitudes towards technology, teaching styles, and technology control will affect what students report about learning outcomes (Sun, Tsai, Finger, Chen, & Yeh, 2008; Webster & Hackley, 1997).

Meanwhile, one pitfall of CSCL environments may be that students' social experiences are taken for granted (Kreijns, Kirschner, & Jochems, 2003). MOOC instructors report that they attend most to performance (Stephens-Martinez, Hearst, & Fox, 2014) and content interaction; social data are of little interest to them (Zinn & Scheuer, 2006). One study of novice online instructors suggests that they overlook the presence or level of community in their classes (Conrad, 2004). Underscoring the inclination to overlook the social psychological aspects of CSCL, Kreijns et al. (2003) argue that possible benefits of *social but non-task* interaction in online learning have been ignored. Thus we see a gap between the expected benefits of social interchange in online learning and the tendency for instructors to ignore such behaviors. This leads us to the following questions:

1. What sorts of social connections do instructors perceive among their distance learners?
2. What techniques do online instructors use to promote such connections among students?
3. What implications do such findings have for design – both of online pedagogy and technology support?

Method

We conducted an exploratory interview study aimed at unearthing patterns for further research and discussion, not to test or generalize differences among courses or instructors. The semi-structured interviews were carried out at a large northeastern university (MyUni). We recruited the distance instructors through convenience sampling and personal connections within an iSchool at MyUni, while also seeking a relatively diverse sample with respect to online teaching experience, subject areas and teaching styles. We analyzed the interviews through inductive thematic analysis (Braun & Clarke, 2006; Strauss & Corbin, 1998). During the data collection, both authors took notes and discussed emerging themes after each interview. Once we did not discover new themes, we concluded that we had reached the point of theoretical saturation and stopped recruiting instructors (n=11).

Participants

We interviewed 11 instructors in the spring of 2016; all teach both in residence and online at MyUni, with a range of prior teaching experience (Table 1). Eight are American; two are from outside the United States. Five are females. The courses taught online by these instructors mirror what they teach in residence; our organization within MyUni has an interdisciplinary education mission, so the courses intermix a wide range of disciplines related to the information sciences, including computer programming, application and database design, security policies and laws, and enterprise architecture. Most of the online courses were for undergraduates; a few instructors teach both graduate (e.g., professional masters) and undergraduate courses.

Interview process

We began each interview with questions about prior teaching experience (e.g. courses, class size, how long online). We next asked for general reflections about connections among online students in three different social contexts: a) among students in the class; b) between the students and the instructor; and c) with MyUni. We focused primarily on online teaching, but at the end asked for a comparison of online and residential teaching. In the process of gathering data, instructors often interleaved comments about their own connections to students with those that the students have with each other, without explicitly placing themselves as "outsiders" to the student milieu; this is not surprising given that we were asking for personal impressions. Therefore, there is considerable overlap in the first two contexts with respect to the presence of communities. However, perceived connections at the level of MyUni or the overall distance education program were viewed as more distinct; these connections are inherently more abstract, diffuse and to a great extent invisible.

Table 1: Instructors' Teaching Profiles

Pseudonym	Teaching years (online/general)	Recent Online Class(es)	Class size
Lily	3/26	Undergraduate intermediate course in human-centered design	35~57
Kyle	3/24	Undergraduate intermediate course in programming	N/A
Matthew	3/22	Undergraduate introductory course & senior technical course in information security	50
Rebecca	2/20	Graduate project course in enterprise architecture	44
George	7/16	Undergraduate intermediate course in databases, project management, and human-centered design class	50
Eric	3/15	Undergrad introductory class in information security; graduate capstone class	50 undergrads, 20 graduates
Scott	1/15	Undergraduate introductory course on programming	35~55
Kristen	3/6	Intermediate undergraduate classes in statistical methods	50~60
Amy	1/5	Undergraduate intermediate course in information security	50
Max	3/4	Undergraduate introductory and senior-level courses in information security concepts and cyber law	50~60
Julie	1/1	Undergraduate introductory course in information security; graduate course in social network analysis	50 undergrads, 20 graduates

Pseudonyms are chosen to signify gender; instructor profiles are ordered roughly by teaching experience.

We recognize that the instructors' comments about student community serve only as indirect evidence, but no instructors found the questions odd and were quite able to answer, often in considerable detail. We also inquired about strategies and technology being used; student data they can access or would like to access; comparison between online and residential instruction; and visions or suggestions to improve sense of community. We interviewed 10 instructors in person; the other participated via a Google Hangout video call. We recorded 9.6 hours of audio data, with an average of 52 minutes per interview session.

Data analysis

We first used open coding to obtain categories related to our research questions. The first author organized these codes into a table that consisted of code names, code memos defining the codes, and sample quotes. We asked a researcher outside the project to review this table using the method of constant comparison (Hallberg, 2006). Coding issues were resolved by discussion with the first author, with changes to categories as needed. The first and second authors then searched for semantic themes and examined similarities and differences, followed by a pruning of codes seen as irrelevant to the central issue of social connections. We organized the remaining high-level themes — indicators of perceived connections and techniques to foster connection — into a thematic map. Each theme was articulated into the subthemes that form our primary findings. This analytic approach is not intended to yield conclusive arguments, but to provide exploratory insights that can guide further in-depth investigations and inform design thinking.

What connections do instructors see?

All instructors reported social connections among students, though some offered more examples than others. In this exploratory study, we cannot be certain whether this is due to personal characteristics of the instructor, course design or content, or other course-specific variables. Thus we report a mix of general patterns and specific illustrative examples, in an effort to shed light on whether and how instructors find the presence and degree of students' connections. Instructors shared a wide range of "evidence" when they discussed how their students felt connected to one another. In the discussion of their comments we focus primarily on positive examples, as these help to paint a broad picture of what instructors notice about how their students interact with each other.

One type of evidence cited regarding student community was students' ***real-time engagement***. Instructors who reported strong connections among students tended to see their students as highly engaged, for example participating in class-wide online chats. Rebecca once attracted ~40 students to a single evening chat and estimates that a large percentage of her students regularly attend her live sessions (e.g. 27 out of 28). George reported a similar success: *"I invite them to come. Of course, I record everything so that they can watch it at a later time, but a significant number of them do come. That's part of building some of this community, too.*"

Instructors also reported that students' real-time engagement with one another could enrich the live session because their shared discussion might uncover some hidden knowledge gap that instructors would not otherwise know to address. The result is a benefit for a broader audience that includes not only the witnesses, but also the students who may not have been there but viewed the recorded session later.

> *Someone asked one question about the next assignment... It was an interesting question, and I explained it. The other student said, "thank you, Nelson, for asking this question. It was very good and helped me understand it." It is hard to know what students want to know, but the live session is an opportunity for real students asking real questions...It is not just my presentation; it has the student's question. I think it enriched the session a lot. (Kyle)*

Participating regularly in synchronous sessions gives students a chance to find out more about one another and feel more connection. Rebecca offers many such sessions in her online teaching, and in once class students displayed a strong attachment to the class at the end of the semester as evidenced by *reluctance to end their semester together*: "*I have students that say: 'It's Tuesday night and there's no class, I really looked forward to class'. There was real camaraderie... I think they really bonded. I think there are some good connections that... some good networking connections that have been made.*" (Rebecca)

In contrast, Scott shared negative results for attempts to engage online students in real-time sessions. Reacting to low attendance rates (less than 5%) at "live with the professor" events, he questioned the need for fostering community, wondering whether people prefer to focus on connections in their real life settings:

> *I provide some fairly rudimentary mechanisms to be more connected, you know discussion forums, online live sessions, and they, and both have been, um very sparsely attended. So, that's my first reaction is that maybe the whole nature of, of at least some online learning is, 'you know I have enough community, at work. I have enough community with my family. Um, I don't want any more community with my online courses' (Scott)*

Some instructors reported students' efforts in sustaining or strengthening interpersonal ties as evidence of student connectivity. Examples of such efforts for ***continued collaboration*** included requests to join a team with someone; calling one another by name in a post; or referencing previous shared experiences. They also observed that students inquired about upcoming classes and anticipated future interactions: "*I've noticed that there can be almost cliques among students, where students that know each other very well and tend to take their classes in the same order, take them the same semester. They know each other already.*" (Lily)

Interwoven within the normal rhythm of classwork, instructors observed evidence of ***mutual support groups*****,** where student ties include emotional connections. Sometimes these social ties are born of team-based collaborations, but they seem to go beyond assigned projects: team members cover for others who may be suffering from personal issues at the cost of doing more than their own share of the work. At a broader scope, online students root for one another through hardships from their encounters in an online class setting, sending encouragement that addresses worries expressed in someone else's message. For example, Julie shared this heartening support offered in response to a self-deprecating post: "*A lot of people were rooting for him, 'I think you'll do good, I hope you'll get a lot out of this degree.*'"

Beyond the context of a class, students also seem to bond around and benefit from ties to a host university (Zhang, Jiang, & Carroll, 2012). We asked instructors whether and how their students feel connected with MyUni. A majority (9 of 11) held a positive impression of students' feelings of connection to MyUni, although not all offered evidence. When it comes to institutional bonds, some instructors felt that online students may even feel more ***institutional pride*** than their residential counterparts. Eric said that his online students use Reddit (a popular forum) to publicize useful online offerings from MyUni; other students use the university mascot as a profile picture, conveying a tie with MyUni; still others drive over one thousand miles to visit the physical campus or attend commencement, suggesting that "they are very proud of" the institution (Eric).

Finally, George shared his own piece of evidence for connections among students at the university level: some of his online students have taken the initiative to create ***student clubs***, reflecting an urge to experience social ties that extend beyond a class and are similar to those built by residential student populations: "*I'm also involved with the MyUni Online Ed club. I'm just an adviser, so once again…I let them have their club. I'm just an adviser. They have a lot of pride in being MyUni students. Overall, I get a sense of that".* (George)

What techniques may help to build community?

After asking the instructors about their perceptions of how student connections are present in their online classes, we asked what they do that may contribute to a sense of community. Not surprisingly, ***public introductions***

are a common technique for increasing the visibility of information about online peers (Mcelrath & Mcdowell, 2008); some of our participants appropriated this as a socializing activity to find compatible team members. When used in combination with self-organizing their teams, students are encouraged to purposefully read information about their peers to select ideal collaborators. The self-organizing orientation instigates a social process in which students glean knowledge about their peers, find commonality and other implicit ties, and may thus build feelings of trust and community more quickly: "*As part of the discussion that takes place in this class introduction, I do suggest that they talk about their expectations for teammates and their general idea of their availability to meet as a team, if they're available in the evenings or weekends or whatever. That's a very important part of any {deleted} class, is having a good team.*" (Lily)

Some instructors award points for replies to peers' introductions, but students also exhibit voluntary interest in engaging this way. As one instructor explained, social exchanges that are oriented towards knowing more about each other seem to evoke reciprocal sharing, perhaps making them feel good about themselves and others: "*I require them to comment on each other's posts, but you could just see that they enjoyed it, that they were curious about what others were doing ... When they see the benefits of getting comments, there's some generosity in the way that they are giving them out. It's this culture of giving and receiving ....*" (Julie).

Another technique for raising students' visibility within the class relates to the work that they produce. For example, Rebecca ***publicizes bits of student assignments*** in the shared forum, inviting responses from the others. Later, she reviews the responses and generates themes as fuel for a live session, where a high percentage of students attend and discuss the topics. This reuse of content promotes attention to peer contributions; students regularly follow up on others' thoughts and experiences, often voicing gratitude that they are learning new solutions from peers who are working in different corporate settings. Similar strategies are employed by Kyle, who uses bits of student programs to demonstrate effective and ineffective coding techniques. Publicizing students' work products not only makes the online peers more socially visible (i.e. as seen in their work products) but also invites students to make comparisons to and reflect on their own work products.

Some instructors told us that they work to ***maintain a teaching presence*** to promote feelings of connection throughout their classes. For example, they hold one-to-many broadcast sessions to gather and attend to students' needs, or just offer general availability: "*I think the first thing to make sure that they understand that you're a real person ... I don't like doing pre-recording stuff. I like the live thing. I went to the live things more. I think that's the teacher connection, the teaching presence that helps students to relate to me.*" (George)

We found two related approaches for enhancing one's teaching presence. Lily wants to make students believe that she is ***real***, so she deliberately communicates using a rich modality (e.g. video camera); Max offers to take phone calls at any time, implying a real-time availability. Another approach is for instructors to provide ***personal*** cues about themselves. For instance, Rebecca injects chit-chat about ongoing university activities or her own life at the start of her live sessions (e.g., while students are "arriving"). This sets up a sort of casual socializing and can evoke student social chit-chat in return: *"... Oh gosh, hold on. Or the cat. Well, they love this. Then they'll say, "say nighty nighty to kitty," or "how is your dog"? "Is your son on the Xbox"?* (Rebecca)

Another technique that may enhance an instructor's presence is the ***personalization*** of their communications to students. George regularly sends out custom messages to individual students: he keeps a student roster and mines information from ongoing class activities to write a personal email for five students he chooses at random each week. His goal is to nurture connection with them:

> *What I try to do, and I don't do this all the time, it depends on my workload, my availability, I try to pick out about five students a week that I will send a personalized email by getting personal, but I know a little bit about them and I'll ask them, especially if they're working professionals, I try to connect with them. Actually, that's some of my success has been being able to do that, connecting with some of these adult learners." (George)*

Personalized communication might be experienced as a social overture that makes students feel cared for and embraced. Regarding student-instructor interaction, one instructor with expertise in sociology shared her happy surprise about reactions to simply asking "How's everything else going" in a class-wide email. Most students dismissed it, but some saw it as an opportunity to "unload"; they appreciated this gesture so much that this instructor was subsequently rated as a student's best professor ever:

> *... for some students apparently, a couple of small emails meant a lot. ... Some person reads it as being very casual, another person reads it as in I really care about their life and the way it was going. They write a long email and they start like, "Thank you so much for asking. I have this thing going on. I had another thing going on with this ...(Julie)*

Discussion

Our study of online instructors' perceptions on building and sustaining community fills a research gap between the expected benefits of enhancing learners' social experience (Kreijns et al., 2003), and the tendency for it to be neglected in distance education practice (Stephens-Martinez et al., 2014).

Toward more sociable CSCL environments

Instructors demonstrated their capability to perceive and infer the presence of community based on their direct experiences and observation. In particular, for relationships between instructors and learners, they affirmed students' appreciation for interpersonal outreach though they also conceded that such outreach often comes with a substantial amount of extra time and coordinating efforts. For student interconnections, their one-to-one connections may grow during a class together, as evidenced by the emotional supports they offer or simply calling one another by name. However, even if strong ties are built there are not obvious channels for continuing these relationships, short of starting an extra curricular organization or trying to schedule courses together. At the institution level of community, ties are difficult to discern or celebrate due to the absence of institution-wide activities and interactions, which also partly accounts for why social connections are hard to maintain once a class session is over. Looking across these findings, it is important to support the desires for interpersonal communication initiated and managed by students on their own, instead of depending on what an instructor can organize or lead.

We suggest that more "sociable" CSCL environments for distance education might store a history of students' social interactions or online encounters (e.g. attending the same online activity in the same class), reinforcing students' inclination to strengthen and maintain well-developed interpersonal connections that grow out of their interactions as classmates (we recognize that such histories and resulting access would raise many issues of privacy, but the general concept is valuable nonetheless). More persistent social venues, such as cross-course or cross-program forums or chat rooms, could be used to reinforce and sustain the relationships developed through the camaraderie of shared coursework, which otherwise would dissipate at the end of a course. The continuation of relationships that originate from (virtual) classroom encounters has been proved to be possible over chat even in MOOC settings, in which alumni in programming classes linger as part of an extended learning community to both contribute and learn from others (Nelimarkka & Vihavainen, 2015).

Helping instructors nurture student engagement

We found that instructors may be promoting feelings of community by publicizing bits of students' work, by injecting more of their "real" selves into their communications and by personalizing the communications they use. Class-level connections seemed to be most strongly created and reinforced through real-time activities that attracted good attendance and high engagement. In particular, instructors can enhance the visibility of implicit social content by publicizing cognitive and socio-emotional knowledge in a larger context. For example, organizing a discussion about someone's submitted project not only brings social attention to that student at that moment, but also invites peer-based evaluation, reflection, and learning. In this sense, instructors may shift interactional resources across different levels of connected learning group units, assembling isolated individual learning processes towards collective knowledge construction at a community level (Stahl & Öner, 2013). Whether it is students' knowledge artifacts (e.g. assignments) or personal background, instructors' public sharing action serves as a social overture that may provoke synthetic discussions or other collaborative learning opportunities.

With respect to CSCL design implications, our interviewees' practices suggest specific enhancements of technology support to attract students socially into the learning subject and with one another. For instance, a synchronous meeting room might include channels to convey contextual cues on what is happening on the other end to make it feel real, such as status updates on specific activities. Text-mining techniques can be applied to self-introductions or other coursework for instructors or students to customize communications with socio-emotional background and predictions. Another design option is to increase the visibility of individual contribution based on instructors' endorsement or teaching assistants' grading outcomes.

Shooting in the dark?

Taking another perspective, we heard concerns from some instructors about students who are "silent" online or fail to even show up for online activities. As a result, these teachers questioned the benefits of organizing class-wide activities in the sense "if we built it, will they come?" Researchers know that heavy reliance on remote communication may encourage students to filter out the cues that indicate presence or attention (J B Walther & Parks, 2002). Just as there will always be students who "take a back seat" in residential courses, similar students will enroll in online courses. At the same time, computer-mediated communications often leave a historical record so that students who do not attend a live session can engage later on. Nonetheless, lurking behaviors in

online courses are even less visible than sitting in the back of a resident course; they require extra efforts by other students and instructors to assess and respond (Tynan, Ryan, & Lamont-Mills, 2015).

Interestingly, the *time* over which computer-mediated interactions take place, and the *visibility* of personal cues within those records may contribute to the growth of social schemas about others (Liebman & Gergle, 2016); these then can be used to draw inferences about affinity (Joseph B. Walther, 1993). Without records of students' time investment and social presence, instructors and peer learners are less able to respond to individual needs. An individual's silence (e.g. not attending a real-time session) may be due to time constraints or other reasons, but attendees at the session are left in the dark about these factors. We suggest that CSCL design enhancements are needed to convey online students' real-time constraints and subsequent activities (e.g., viewing or commenting a recorded session) in ways that make their presence visible and accountable (Erickson & Kellogg, 2000). As an example of a specific design direction, the sharing of explicit declarations about time availability may help both instructors and peers adopt a more nuanced set of participation expectations.

Limitations and future work

Because we are part of an interdisciplinary college, our instructor-participants represent a range of course topics, teaching experiences and approaches; even so, this exploratory study was conducted within one college at MyUni, and we call for future research to generalize and extend our exploratory analysis. We also recognize that ours was a descriptive study that relied extensively on instructors' opinions and our own interpretation of the same; we cannot draw firm conclusions about causal factors or mechanisms in building community in online courses. We are now analyzing data from students' reflections about community to triangulate our findings, as well as iteratively designing online tools for evoking and enhancing student community.

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