STUDENT SUPPORT NETWORKS IN ONLINE DOCTORAL PROGRAMS: EXPLORING NESTED COMMUNITIES

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ABSTRACT

Aim/Purpose	Enrollment in online doctoral programs has grown over the past decade. A sense of community, defined as feelings of closeness within a social group, is vital to retention, but few studies have explored how online doctoral students create community.
Background	In this qualitative case study, I explore how students in one online doctoral program created a learning community.
Methodology	Data for the study was drawn from 60 hours of video footage from six online courses, the message boards from the six courses, and twenty interviews with first and second-year students.
Contribution	Findings from this study indicate that the structure of the social network in an online doctoral program is significantly different from the structure of learning communities in face-to-face programs. In the online program, the doctoral community was more insular, more peer-centered, and less reliant on faculty support than in in-person programs.
Findings	Utilizing a nested communities theoretical framework, I identified four sub-groups that informed online doctoral students' sense of community: cohort, class groups, small peer groups, and study groups. Students interacted frequently with members of each of the aforementioned social groups and drew academic, social, and emotional support from their interactions.
Recommendations for Practitioners	Data from this study suggests that online doctoral students are interested in making social and academic connections. Practitioners should leverage technology and on-campus supports to promote extracurricular interactions for online students.
Recommendation for Researchers	Rather than focus on professional socialization, students in the online doctoral community were interested in providing social and academic support to peers. Researchers should consider how socialization in online doctoral programs differs from traditional, face-to-face programs.

Impact on Society	As universities increase online offerings, it is important to consider the issues that impact retention in online programs. By identifying the social structures that support online community, this study helps build knowledge around retention and engagement of online students.
Future Research	Future research should continue to explore the unique social networks that support online students.
Keywords	community, online learning, virtual classrooms, cohort, social network, socialization

INTRODUCTION

Many students enroll in doctoral programs expecting rigor and anticipating academic challenges. However, students often encounter unexpected social challenges in pursuit of the doctorate (Golde, 2005). Numerous studies suggest that doctoral students struggle with isolation, disengagement, anxiety, and depression (Stubb, Pyhältö, & Lonka, 2011; Wyatt & Oswalt, 2013). Research suggests that a sense of community can be a protective factor against isolation and disengagement (Drouin, 2008; Outzs, 2006; Rovai, 2002) and can help doctoral students manage feelings of anxiety and depression in some cases (Stubb et al., 2011). A sense of community is defined as an overall feeling of membership, belonging, and trust within a supportive social group (McMillan & Chavis, 1986). In this qualitative case study, I explore how students in an online doctoral program define and create community.

In a learning community, participants work together to pursue academic goals and provide social, emotional and scholarly support (Outzs, 2006; Yuan & Kim, 2014). Feelings of membership in a learning community have benefits for students (Ke & Hoadley, 2009). Socially, a sense of community is associated with increased engagement in the learning environment (Rovai, 2003). Academically, community is associated with an increased likelihood of persistence (Tinto, 1993). Researchers suggest that creating community may be particularly difficult for doctoral students (Ali & Kohun, 2006; Lovitts, 2001). The independent nature of doctoral studies, the stress associated with rigorous academic programs, and competiveness over institutional and post-graduate resources may make it difficult for doctoral students to form bonds with peers and faculty (Anderson, Cutright & Anderson, 2013). When students lack social connections with faculty and peers they are at risk of withdrawing from doctoral programs. In one of the largest studies on doctoral students' experiences, Nettles and Millett (2006) determined that attrition ranged between 11% and 68% depending on the discipline.

Students at every academic level derive benefits from membership within a learning community (Tinto, 1993). However, the ways in which students become members of a learning community vary across contexts (Gardner, 2008). Many researchers have used a socialization framework to explore how students develop the skills, dispositions, and experiences necessary for success during and after the academic program (Gardner, 2010; Weidman, Twale, & Stein, 2001). Researchers assert that doctoral socialization processes, including mentoring and advising relationships, participation in research and lab groups and conference attendance impact students' academic, professional and social adjustment to the doctoral program (Gardner, 2010; Lovitts, 2001). Doctoral students who have success in the socialization process and are able to form positive and productive relationships with faculty and peers are likely to feel a sense of membership within an academic community (Lovitts, 2001).

Students' experiences of socialization into a learning community vary based on disciplinary, institutional, and environmental contexts (Gardner, 2008). For example, Golde (2005) and Gardner (2008) have noted that socialization in the sciences occurs in lab groups, whereas socialization in the humanities occurs through independent work and advisor-advisee relationships. Weidman et al. (2001) noted that doctoral socialization is also impacted by departmental culture and interactions with faculty and peers within the academic department. Doctoral students who have supportive interactions with faculty and who are encouraged in their scholarly pursuits are more likely to feel integrated into the department than students who lack such interactions (Bagaka's, Badillo, Bransteter, & Rispinto, 2015; Lovitts, 2001).

While it is widely held that socialization into learning communities is contextual (Gardner, 2008), few studies have explored the ways in which online doctoral students become members of virtual learning communities (Rovai, 2003). Online students face unique barriers in making connections with peers (Ke & Hoadley, 2009), including challenges associated with creating relationships at a distance. As a result, online students may be at high risk of attrition from academic programs (Rovai, 2003). Given the centrality of community to doctoral students' engagement and persistence in traditional programs (Jairam & Kahl, 2012), and the dearth of research on community in online doctoral contexts, it is important for researchers and practitioners to understand the sources of social support for this unique population. By understanding the ways in which online students create community and by identifying the sources of support for connection in online doctoral programs, researchers and practitioners can design programs that support distance learners' satisfaction, persistence, and retention.

LITERATURE REVIEW

Researchers and practitioners have devoted considerable effort and scholarship to undergraduate students' experiences in learning communities but have overlooked the needs of graduate students (Patton & Harper, 2003). White and Nonnamaker (2008) suggest that the dearth of literature on doctoral communities is associated with beliefs about the capacity of those students to quickly adapt to academic environments and beliefs that students who are successful enough to gain entry into doctoral programs do not need support with social integration into academic programs. Despite the dearth of literature, a few studies have explored doctoral students' communities.

Strong relationships with advisors are central to doctoral students' feelings of connection and likelihood of persistence (Bagaka's et al., 2001; Lovitts, 2001). Advisors play multiple, critical roles in doctoral students' experiences (Anderson et al., 2013). Advisors provide doctoral students with mentorship and professional development (Gardner, 2008). Additionally, advisors can help connect students to resources at the department and institution and help students foster professional and personal networks that can provide a range of academic, social, and emotional support to students (Earl-Novell, 2006).

Anderson et al. (2013) found that productivity, satisfaction, and degree progress are all impacted by doctoral students' connections with faculty in the academic department. Students who lacked strong relationships within their department were likely to have reduced academic productivity and a weaker sense of community than more highly connected students. Ali and Kohun (2006, 2007) found that doctoral students who experienced challenges with their advisors were more likely to withdraw from academic community. They suggest that doctoral programs should provide opportunities for peers to create social relations with faculty, staff, and peers, as these relationships provide social support. Toward that end, they recommend the creation of activities that promote student-peer and student-faculty interaction, including orientations, brown bag lunches, and research colloquia. These experiences provide opportunities for academic and professional development and socialization into departmental and academic cultures (Ali & Kohun, 2006, 2007; Lovitts, 2001).

In addition to focusing on the academic benefits such as retention and productivity (Ali & Kohun, 2006, 2007), researchers have explored the impact of community on doctoral students' social and emotional wellbeing. In a survey of nearly 700 PhD students, Stubb et al. (2011) found that a sense of community can act as a buffer against feelings of stress, anxiety, isolation, and burnout. Drawing on that same data, Pyhältö, Stubb, and Lonka (2009) found that feelings of membership in a community can be a source of empowerment for emotionally overwhelmed students and can help them manage stress and exhaustion. Stubb et al. (2011) and Pyhältö et al. (2009) found that doctoral students who felt they were in a community received psychological benefits from their membership, including encouragement, inspiration, academic assistance, and emotional support.

Interactions with faculty and connections with peers provide doctoral students with a sense of support in academic program. However, the ways in which students interact with faculty and peers is

contextual and depends on a range of factors including institutional and departmental cultures and individual characteristics (Ali & Kohun, 2007). White and Nonnamaker (2008) explored the ways in which doctoral students' membership within different subcommunities provided a sense of support. In a two-year study of 60 doctoral students, they found that doctoral students in the sciences received support from their relationships in five different groups: their discipline, institution, department, lab, and advisor. The support doctoral students experienced in various subgroups impacted their overall experiences (White & Nonnamaker, 2008).

Other researchers have explored social support networks outside of class. Jairam and Kahl (2012) studied the impact of academic friends, family, and faculty on doctoral students' stress. They found that doctoral students benefit from connections with all three groups, and these groups act as social support systems when they provide acceptance, assistance, and advice and fulfill basic social needs. Jairam and Kahl (2012) further found that encouragement, professional advice, and material support helped mitigate feelings of stress and isolation within a doctoral program.

Researchers have also explored the ways in which doctoral students from marginalized groups develop support networks within and outside of the academic program. Patton (2009) looked at the ways in which Black women in graduate programs seek out mentors to provide psychosocial support and assistance with academic tasks such as opportunities for research and publication. Patton (2009) notes that Black masters and doctoral students may seek out mentors in the academy, including faculty outside of their department. They may also look for social support outside of the academy, drawing on mentors from other fields and from their communities to find support for a range of interpersonal and professional needs.

COMMUNITY IN ONLINE DOCTORAL PROGRAMS

Despite the growing body of literature on doctoral students' communities, little attention has been given to doctoral students' experiences in online contexts. Literature on undergraduate and master's students in online programs suggest that online students receive academic, social, and emotional benefits from feelings of membership in a learning community, but face many contextual barriers in constructing community (Lear, Ansorge, & Steckelberg, 2010; Whiting, Liu, & Rovai, 2008). Vesely, Bloom, and Sherlock (2007) noted that both online students and faculty said that it was more difficult to connect online than in a traditional class and that online connection required more effort inside and outside of the classroom.

Instructors play a key role in the online experience (Garrison, 2011). Instructors can use a variety of pedagogical strategies to promote interactivity in online learning environments (Lear et al., 2010; McElrath & McDowell, 2008). The ways in which instructors facilitate discussions and develop assignments can promote peer interaction and strengthen online students' sense of community (McInnerney & Roberts, 2004). Despite a growing base of literature on best practices in online teaching, instructors may not always encourage the peer interactions necessary for online students to develop a community. In a study of 535 online graduate students, Bianchi-Laubusch (2016) found that 42% of students in an asynchronous program never had the opportunity to communicate with peers. Haythornthwaite, Kazmer, Robins, and Shoemaker (2006) note that it is easy for online students to "fade to the back row" of online classes and not participate. Instructors must be intentional about helping students engage with peers in online classrooms, or else it is unlikely to happen (Palloff & Pratt, 1999; Stepich & Ertmer, 2003).

Positive interactions with instructors and satisfaction with curriculum have been associated with online students' sense of community (Rovai, 2003; Tu & McIssac, 2002). Dawson (2006) found that online students who have more frequent interactions with peers and instructors typically develop stronger feelings of community than peers who have infrequent social interactions. A number of activities inside the classroom have been found to impact online students' sense of community (Rovai, 2003). Whole group discussions that center on students' professional and personal goals have increased students' feelings of connection and engagement to the online group (Garrison, 2011).

Collaboration is also essential in fostering community in online programs (Baab, 2004; Stepich & Ertmer, 2003). Wang and Morgan (2008) found that instant messaging within an online class encouraged collaborative learning and helped online students create bonds. Small group projects and collaborative learning activities have also enhanced feelings of connection among online students (Liu, Magjuka, Bonk, & Lee, 2007; Rovai, 2002).

Outside of the classroom, online students may be at a disadvantage with regard to social interaction (Brown, 2001). Cleveland-Innes and Gauvereau (2011) and Conrad (2005) have pointed out that online students lack spaces for informal interaction, such as hallways and cafeterias, making it harder for online students to connect. Additionally, student support services that facilitate peer-interaction on campus are not typically extended to online students (Kretovics, 2003). As a result, online students may struggle with developing feelings of connection to an academic community (Rovai, 2003).

Researchers know that feelings of membership in a learning community have academic, social, and emotional benefits for online students (Pallof & Pratt, 1999; Rovai, 2003). While researchers know that community matters, they have not explored how online doctoral students construct community. This study begins to fill that gap in the literature.

THEORETICAL FRAMEWORK

The theoretical framework for this study is based on conceptual frames from McMillan and Chavis' (1986) definition of community, Rovai's (2003) research on online community, and White and Nonnamaker's (2008) doctoral student community of influence model. McMillan and Chavis (1986) assert that in a community participants will have feelings of belonging, membership, trust, and mutual support. These feelings will be developed through frequent, positive interaction and the exchange of information and resources. Rovai (2003) suggests that in an online program students will become integrated into a learning community through their interactions in online classrooms. White and Nonnamaker's (2008) doctoral student community of influence model further parses out the spaces and relationships where doctoral students might develop a sense of community. Drawing on the work of Golde (2005), Jones and McEwen (2000), and Tinto (1993), White and Nonnamaker (2008) argue that, for doctoral students, academic community can be understood as occurring in five overlapping spheres ---the discipline or professional field, the institution, the department, the lab, and the advisor-student relationship. While many other spheres impact doctoral students' experiences, their sense of community is based significantly on where they are in relationship to any of the aforementioned groups. Researchers have yet to explore how online doctoral students' sense of community is impacted by their participation in these or other nested groups. Due to its' detail and clarity, White and Nonnamaker's (2008) conceptual framework serves as an appropriate theoretical starting point for exploring online doctoral students' experiences.

METHODS

RESEARCH QUESTION

This study was driven by the research question, "What spheres, networks, and relationships impact students' sense of community in an online doctoral program?"

SETTING FOR THE STUDY

This study was conducted in an online Doctorate in Education program at the University of the West (a pseudonym). The program was a three-year interdisciplinary program focused on education leadership. There were approximately 160 students in the program. Students met synchronously twice weekly in virtual classrooms.

THE CASE STUDY

To explore online doctoral students' sense of community, I used qualitative methods. Qualitative methods allow for researchers to prioritize participants' perspectives in data collection and analysis (Merriam, 2014). Using participants' perspectives is critical with a topic like online community, where experiences are highly subjective and contextual (Black, Dawson, & Priem, 2008). Students' experiences may vary widely, and using qualitative methods can help researchers capture a broad range of experiences and relate those experiences in ways that capture details, nuances, and variability (Merriam, 2014)

I used case study methods to explore community in an online doctoral program. In conducting a case study, researchers can use multiple sources of data to explore a phenomenon (Merriam, 2014). In using multiple sources, researchers can triangulate findings, thereby enhancing their validity (Merriam, 2014). This study drew on data from digital video archives of the class sessions, threads from the classroom message boards, and interviews with first and second-year students in the online program.

DATA COLLECTION

Digital video archives

To learn about the interactions and experiences that potentially impacted the learning community, I watched archived video footage of virtual classroom sessions. I reviewed recordings from three first-year and three second-year courses over two semesters, totaling approximately 60 hours. I selected classes taught by new and senior faculty to get a range of experiences.

To collect data from the video footage, I used a semi-structured observation protocol. In the first half of the protocol, I made notes about everything that was observed in the classroom space, divided into five-minute increments. In the second half of the protocol, I identified examples of community in the classroom. Drawing on McMillan and Chavis' (1986) definition of community, I noted examples of support, trust, membership, and belonging. I also noted any references to other spheres of community as outlined in White and Nonnamaker's (2008) doctoral student community of inquiry framework. Specifically, I noted references to the discipline, sub-discipline, or professional field, the institution, the department, the lab, and the advisor-student relationship (White & Nonnamaker, 2008). In addition to identifying elements of community as defined by the literature, I also used the protocol to make note of interactions that did not fit with the literature on community, as well as disconfirming cases.

Message boards

In the online program at University of the West, each online course had a message board. I observed video footage from six courses and also analyzed the six message boards associated with those courses. Students were required to utilize the boards, and faculty and staff occasionally utilized them. Analyzing message boards helped me gain another perspective on how online doctoral students' constructed community.

Interviews

To ensure that my interpretations about community were reflective of students' experiences, I conducted twenty semi-structured 45-minute interviews. Interviews allowed me to understand how students defined community and explore where they experienced community. Interviews also allowed me to validate my assertions and explore alternate hypotheses.

Dawson (2006) and Rovai (2003) both found that students who participate more frequently in online classes have a greater sense of community. For that reason, I solicited interview participants who were the most and least frequent participants in the online courses. I used a semi-structured protocol to interview the students. In the interviews I asked about how students' defined community and

about the interactions that impacted their sense of community, including interactions within their department, with peers, and with other individuals at the institution. Some questions were open-ended, in order to allow students to share any unique or disconfirming experiences. After interviewing ten students from the first cohort and ten students from the second cohort, theoretical saturation was reached.

DATA ANALYSIS

Data collection produced transcripts from six message boards and twenty interviews, as well as observation protocols from 60 hours of footage. To analyze these texts, I conducted a thematic content analysis (Saldaña, 2012). I began the analysis with a set of codes drawn from definitions of community from the literature (McMillan & Chavis, 1986) and spheres of support drawn from White and Nonnamaker's (2008) doctoral student community of inquiry framework. Specifically, I highlighted indicators of community, such as membership, belonging, support, and trust, and noted spheres of community, such as the classroom and the research group. Utilizing Nvivo, a qualitative data analysis software system, I conducted two cycles of coding. First I coded everything that fit with the pre-determined codes from the coding scheme (Saldaña, 2012). The coding scheme was amended to reflect the emerging patterns, and codes that did not apply were removed from the data. For example, many new codes emerged that were relevant to the learning management system, including references to the virtual classroom. Codes also emerged related to types of communication (i.e., texting, instant messaging) and to types of social media (i.e., Facebook). In the second cycle of coding I re-analyzed the data using the established and emergent codes (Saldaña, 2012). To develop the case study, I identified the key themes related to how and where students constructed community and triangulating these themes across data sources (Merriam, 2014). Themes that held across data sources, and particularly themes that were supported via member checks in interviews with students, became the final case study.

FINDINGS

In the online doctoral program at the University of the West, students defined their community as a highly interactive and supportive social group where peers collaborated to pursue degree-related goals. Students also shared professional advice and provided emotional support to help manage personal challenges associated with pursuing a doctorate. While all students had unique descriptions of community, each of the twenty interviews revealed that online doctoral students derived feelings of membership from interactions in four groups --the cohort, their classrooms, small study groups, and small friendship groups. Brief descriptions of each subgroup are included in Table 1. In the paragraphs that follow I describe the role of each group in shaping online doctoral students' sense of community.

COHORT RELATIONSHIPS

The doctoral program at the University of the West utilized a cohort model. At the time of the study, there were two cohorts of approximately 60 students each. In interviews, students suggested that the cohort was their largest social sphere of influence within the program. The cohorts were self-contained groups, and students had virtually no interaction with students outside of their cohort. Within the boundaries of this pre-assigned 60-person group students developed feelings of connection and closeness.

Table 1. Subcommunities in the Online Doctoral Program

Subcommunities in the Online Doctoral Program	Description	Relationship to Online Doctoral Students' Sense of community
Cohort	Upon entry into the program, students were placed into a 60-person cohort.	Cohort membership provided students with a sense of collective identity.
Classroom	Classes were 9-15 students each. Many students were intentional about taking classes with the same group each semester. These peer groups grew closer over time.	Classes provided spaces for small groups of students to learn about each other. Students provided academic support (e.g., sharing resources, reviewing papers) to classmates.
Friend Groups	All students interviewed had at least three to five friends in the program with whom they spoke to at least once weekly.	Students provided social support to small groups of friends by sending encouraging messages to each other.
Study Groups	All students interviewed worked on assignments with at least one other peer. Virtual and in-person study groups ranged from two to seven members.	Students provided in-depth academic support to colleagues via study groups. Students would read and edit papers and would work collaboratively for two to eight hours per week in study sessions.

Students suggested that the cohort was an important group for students because it added structure and cohesion to the online experience. The cohort was an exclusive group, comprised of students who began the program at the same time and were expected to graduate together. Students in the same cohort followed the same academic timeline, which included taking all of their core courses together. The structure of the program gave a students' a sense of cohesiveness that transformed the cohort into a close-knit social group. For Kayla, being a part of a cohort of students who took the same classes together helped bring students closer by creating a shared experience.

> I think it is very important. We are cohort 1… and I know that I have other classmates that make a great deal of the fact that we are the first cohort. The biggest impact that the cohort has on community is that we are taking the same courses. So again, just going back to that shared experience… no matter when you have your methods class we all are taking a methods class at the same point, so we are all taking about the same terminology and the same readings. That part has been helpful.

Many students echoed Kayla's perspective that the cohort model led to a shared experience, where students were taking the same classes, having the same academic experiences, and developing a common language. Even though students may not have had the same instructor, the cohort model combined with sequential classes meant that peers in the program were having a similar experience. This similar experience formed the basis of the online community.

Students in the first cohort had a particularly strong sense of group membership and collective identity. Students derived a sense of pride from being members of the inaugural group and bonded over the experience of being the first cohort in the online doctoral program. Here is how Lena describes the significance of being members of the first cohort.

> I think we are unique in that we are the first cohort. We are the first to deal with the growing pains. We are the guinea pigs. Everything after us should be getting better, but we had to deal with all the bumps in the road because we are the first class of the EdD online. That's a big deal for us. That's created a great deal of camaraderie. For the most part we are all close and we will get closer by the time we graduate because we have all been dealing with the same issues.

For students in the first cohort, going through challenges together, troubleshooting problems and watching the program evolve contributed to their sense of community. In interviews, Ashley and other students suggested that they felt an obligation to provide support to members of their cohort.

> In our group we motivate each other. There are days when we are not motivated to do work, but we help each other out. That's the thing with being in a cohort, you don't want to leave your friends behind.

As Ashley's quote suggests, students felt a sense of connection and duty to their cohort. This bond strengthened peer relationships within the group, and supported students' sense of community.

CLASSROOM RELATIONSHIPS

In interviews, students indicated that they felt a general sense of connection to all members in their cohort. However, students derived a deeper sense of closeness from their interactions with peers inside the classrooms. Students were required to take two classes each semester. Classes were offered during the week and on weekends. Many students elected to take their classes in a block (e.g., two Saturday classes or two weekday classes) and tried to maintain this schedule throughout the academic program. There were between nine and fifteen students in each class, and taking classes at the same time each semester greatly increased the likelihood of taking courses with the same small group. Students noticed that in taking classes with the same small group, they grew closer over time. The individual classrooms became their own supportive sub-communities. Here is how Meg describes the experience.

> So I've stuck with the same schedule since the beginning. I always do classes on Wednesday nights and Saturday mornings. You build a community that way, by taking your classes together. There are several people that do a double header of both of their classes on Saturday, and that core group is always around. You start to see these little niches forming because people are more familiar with each other. They've been together more, and they have a shared experience.

These "little niches" were most pronounced among the "Saturday warriors", students that took two classes together on weekends. These students typically took their courses together because of work schedules. Students said it was "exhausting" and "overwhelming" to meet on weekends, but students bonded from shared experience. For Aaron, the weekend classes were a supportive sub-group.

> The Saturday classes are kind of special. There's not a lot of shifting around the Saturdays. I'd say that there are ten of us that have taken the same classes so far, and so having the same group of people that you take classes with for a few years really builds that closeness.

As Aaron and other students indicated, the classes became a core group, from which members received social and academic support. While students knew all of the peers in their cohort, they felt particularly connected to peers in the virtual classrooms. Over time, classmates became sources of emotional support for students. For example, Aaron describes the support he received from peers after his wife was injured in an accident.

> When my wife had an accident I got all kinds of support from my classmates. I would say I consider most of my Saturday classmates my friends. We do know a lot about each other personally. We ask about each other before and after class starts and we send emails back and forth. There's a strong class connection.

For Aaron and for others, relationships increased in depth over time. Students shared more with each other and meaningful support within the virtual classes, which strengthened their sense of community.

SUPPORTIVE FRIENDSHIPS

While the virtual classrooms were a sphere of frequent interaction and supported strong feelings of closeness between peers, some of the more intimate interactions between peers occurred in small groups. Students in the program described having between three and five peers with whom they talked to between once weekly and once daily. The online doctoral students used a variety of means to connect. Some students spoke on the phone, while others sent emails to peers. Many students used group text messaging apps to communicate with several friends simultaneously. Friends played an important role in helping students navigate and persist in the academic program. Ashley described the role of friends in the online doctoral program this way.

> I don't think it's possible to get through a doctoral program without your friends (in the program). No matter how close you are in "real life" with family and friends, no one knows what you are going through except for these people. There's nobody else who can be at the level of empathy for what you are experiencing as a full time employee, community member, student and someone with other life roles. These are the people that really, really get it, so it's good to have those people.

Students would draw support from friends in the program in various ways. Keshia would text peers often, "just to keep the morale up". Juan would check in with peers regarding his dissertation and encourage his friends in the program to keep pressing toward graduation. Ashley would send out jokes and images that related to the doctoral student experience. Not only did the small friendship groups help students manage stress within the online doctoral program, the friendship groups helped the online doctoral students manage the stress of playing multiple roles outside of the program. For example, most students were mid-level professionals and were juggling doctoral studies between work, family, and other personal responsibilities. Doctoral work placed new stresses in their lives and constraints on their time, and students drew a sense of support from having groups of friends within the program who knew what those tensions were like. Arianna describes her experience this way.

> Some of your other friends (outside of the program) don't understand what you are doing. They get offended you can't make this birthday party or that event. I know I've lost some friends (outside of the program). Within the program we are bonded in these friendships.

For students in the online doctoral program, friendships with peers provided academic, social, and emotional support. Friends provided feedback, motivation, and encouragement. Students would often vent to their friends in the program and seek out dissertation advice. For Isaiah, the support of peers was linked to students' shared goal of successfully completing the program.

> I think everybody has the common goal of graduation. We kind of motivate and push each other through the long nights and the hard assignments, that's essentially what we do.

Friendship networks in the online doctoral program provided students with motivation and guidance. Students' commitment to peer support strengthened the academic community.

STUDY GROUPS

While friendship networks provided students with social support, students also sought out academic assistance from peers. To manage the doctoral workload, students created study groups. These study groups ranged between two members and seven members. Sometimes study groups were pre-determined, as when a class assignment required collaboration with select individuals. Other times, groups were impromptu and emerged to provide support on a select assignment. For example, Christie started an online group for students that wanted to review each other's writing assignments. Meg

would invite classmates to meet after class via Skype or Google hangout to discuss class concepts. Regardless of the structure of the study group, eighteen of the twenty students interviewed indicated that they had at least one colleague with whom they would check in about courses, ask questions, and exchange notes.

Occasionally, study groups were exclusive and grew out of a friendship group to include other doctoral students by invitation. Such was the case with one group of seven students in the program. Early on, students realized that many of their peers lived near the main campus. One group decided to create an exclusive, on-campus study group. The group of seven students met three times weekly in the library. Arianna, a founding member of the group, said that the study group arose as a way for friends in the program to provide each other with academic support.

> As soon as we started the program, two of us noticed that its just no way, you can't do this alone. What happened is someone would say, "I'm having a hard time" and we would say, "ok, come and meet with us." Another person would say, "I'm struggling", so we would say "go ahead and meet with us too." When a person said they had a need we invited them.

The study group developed into a formal learning group, where students met several times weekly to work on assignments. Whereas most of the study groups that other students founded were informal and were activated to meet the demands of specific assignments, Arianna's group was highly structured and formalized.

> We have meeting times and dates. We have writing cafes where we get together and read each other's things. We give each other critical feedback and suggestions. We share articles because we know each other's field of study and dissertation topics so we share articles amongst each other.

Arianna described this group as "a little community". Over time, members of the group developed very strong bonds. Students in this group organized social events to nurture these bonds. Here is how Arianna describes her interaction with friends in the study group.

> We hang out. We actually go to resorts. We have been to beach resorts. We do a shut-in weekend there, where we go to the sauna and do yoga. In April we are going to another resort for the weekend. We are going to have a writing session and get massages. We also go to different homes. We had a weekender at my house. One man who is involved in politics has invited us to certain political dinners and events. We just started hanging out with one another.

For students in the online doctoral program, academic support overlapped into social support, and students derived a sense of community from their collaborative work with peers.

ISOLATES IN THE ONLINE DOCTORAL PROGRAM

Of the twenty students interviewed, eighteen indicated that they had a strong sense of community and that sense of community emerged out of feelings of membership in four subcommunities. Two students indicated that they did not feel a sense of community in the online doctoral program and lacked strong connections within their classes and among their cohort. For these two students, time, interest, and the challenges associated with making friends online were identified as factors in isolation from the learning community. Both students said that they did not have time to form bonds with peers due to busy work schedules. They also said that they chose an online program for convenience and for professional development and did not view peer interaction as necessary to helping them pursue professional goals. Finally, they admitted that making connections in an online program was difficult without support. Unlike in a face-to-face program, where you can connect with peers while passing in hallways or attending events, connecting with peers online required intentional, self-directed efforts. The two isolates in the study admitted that they struggled with reaching out to new people and, therefore, struggled connecting with peers. By contrast, the eighteen students who did

experience strong bonds with peers were comfortable reaching out through email and text message and were committed to spending time to create and maintain connections. As a result, four subcommunitiies – cohort, classroom, friendship groups, and study groups provided powerful spaces to strengthen online students' connections.

DISCUSSION

Online doctoral students experience community in ways that differ from their counterparts in traditional, face-to-face programs. Whereas doctoral students in traditional programs experience community through interactions with a broad network of people within their institution, department, and field (White & Nonnamaker, 2008), online doctoral students' community networks were considerably smaller and more insular. While doctoral students are traditionally impacted by relationships with faculty and professional leaders, findings suggest that online doctoral students are sustained mostly by their experiences with peers. Understanding the difference in network structure is critical as researchers and practitioners seek to design interventions that support online students. In addition to the differences in network structure in online and face-to-face environments, these findings highlight four significant findings about online doctoral community: the secondary role of academic socialization in the online doctoral community, the reduced centrality of institutional agents in online groups, the role of formal and informal structures in supporting community, and the degree of interactivity among distance learners.

In the literature about doctoral students in face-to-face programs, academic socialization experiences provide the basis of community (Golde, 2007; Weidman et al., 2001). For example, interactions at academic events such as orientations, brown bag seminars, colloquia, and conferences typically undergird doctoral community, providing students with professionalization and social interaction (Lovitts, 2001). In this study, students in the online doctoral program did not cite these experiences as supports for the learning community. Part of this phenomenon can be attributed to access —online programs tend to offer far fewer events and support services than face-to-face programs (Kretovics, 2003). However, in this study, online doctoral students did not necessarily desire these resources either. Rather than focusing on professional development activities as a means for social support, online students drew social support from talking, texting, and studying together. The findings challenge traditional literature on doctoral student socialization that suggests that students experience community integration via academic and professional socialization (Golde, 2007; Weidman et al., 2001).

The findings from this study also challenge doctoral literature on the role of institutional agents in doctoral communities. In face-to-face programs, faculty play an essential role in the ways in which doctoral students connect (Ali & Kohun, 2006). As instructors, faculty can facilitate peer interactions (Garrison, 2011). As advisors, faculty can connect doctoral programs to other colleagues and resources within the department, institution, and field (Jairam & Kahl, 2012; Lovitts, 2001). As a result, research suggests that doctoral students' relationships with faculty are vital in how they construct community (O'Meara et al., 2014). By contrast, in the online doctoral program, students did not rely on faculty to help facilitate connections. Instead, students sought out relationships with peers as a way to find academic and social support. Students worked with peers to prepare for exams, review papers, and provide professional advice. Findings from this study suggest that faculty may be less central in online communities than in on-ground communities. More research needs to be done to explore the roles that faculty play online and the impact of the changing faculty role on online students' experiences.

The findings in this study about online doctoral communities also bring to light the formal and informal structures that support online students' experiences. The cohort structure was particularly essential in supporting doctoral students' virtual relationships. The cohort provided a natural foundation for the supportive social network, a defined group with clear boundaries and membership guidelines. Students built off of the base of the cohort to form smaller supportive groups. Only a few

studies, like the ones by Conrad (2005) and Haythorntwaite, Kazmer, Robins and Shoemaker (2000) have explored the role of cohorts in supporting online communities. In line with the aforementioned studies, this data suggests that cohorts can provide crucial support for distance learners.

Finally, an important finding from this work is the degree to which online students sought out peer-interaction. Contrary to stereotypes that construct online students as too busy or disinterested in peer interactions, findings from this study show that online students are highly interactive and use a variety of tools to engage frequently (Rovai, 2003). For example, in this study, online students used social and mobile media to connect weekly. Researchers should continue to explore online students' extra-curricular interactions, and student support staff should consider designing resources and programs that help facilitate peer interaction in online programs (Kretovics, 2003).

CONCLUSION

Doctoral programs can be isolating (Lovitts, 2001). Isolation is a contributing factor to attrition, which is over 50% in some doctoral programs (Nettles & Millett, 2006). Community can be a protective factor against isolation and attrition (Rovai, 2003). While researchers have explored community in traditional, face-to-face doctoral programs, there have been few qualitative studies about the structure and nature of community in online doctoral programs. Findings from this study indicate that online doctoral communities vary considerably from their face-to-face counterparts in that they are smaller, more insular, and lack central institutional figures such as faculty. The contrasts of online community and the differing roles of participants play in its creation merit future study of this context.

Studies of online programs tend to bind their inquiry to classroom interactions (Dawson, 2006; Rovai, 2003). While classroom experiences contributed greatly to students' sense of community in this study, findings indicate that the cohort was actually the base of the learning community in the online doctoral program. Being designated as members of a 60-person group gave students a shared identity and a sense of belonging to a social group. From that group, other supportive subgroups emerged. This finding suggests that cohorts play a vital role in how online doctoral students create initial bonds, and that the subsequent bonds that form are multilayered, and academic and social in nature. It is important then, given the multifaceted structure of online doctoral communities, that future research focuses on the diversity of connections amongst online students across these sub-groups.

As researchers and practitioners continue to explore online doctoral experiences in the subgroups identified in this study, they can make strategic decisions about where to collect data and where to develop retention interventions for students. For example, using this framework, researchers can explore how academic subgroups in online classrooms are extended outside of the classroom in the form of study groups. Alternately, practitioners can explore how the social networks formed in the cohort evolved into smaller friendship networks. This study shows that different subgroupings in online doctoral programs promote engagement in different ways, Researchers must continue to explore the ways in which participation in online groups impacts' engagement, and how this engagement with learning community impacts' online students' persistence.

Finally, as online programs continue to grow, it is important for researchers and practitioners to continue to examine these programs with nuance and contextualization. Studies such as this one point to the layered interactions and experiences within one program and their contribution to students' overall experiences. In using a nested communities framework, researchers and practitioners can more holistically examine the many levels of support and connection in online doctoral programs, and ensure that these programs provide appropriate support for students.

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