Online University Students' Perceptions of institution and Program Community and the Activities that Support Them

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Abstract
The twenty-eight item Sense of Online Community Scale was completed by 293 online students at a midsized southeastern United States university to ascertain community importance and activities associated with its formation and maintenance on the program and institutional level. A large majority of these students believed that a sense of community was important and that a sense of belonging, affiliation, and trust were valuable for community formation. Participants also believed that program and institutional activities, both academic and social, played key roles in community formation. However, academic activities (e.g., advising, program milestones, writing centers, library support) were rated as more influential than social activities (e.g., get-togethers, online games, institution sporting events). When demographic characteristics were considered, non-White participants rated their sense of affiliation with their program/institution higher than White participants. Participants who lived within a one-hour commute to campus (51% of our sample) rated institutional social activities higher than those who lived farther out. Doctoral students rated program activities as more conducive to community formation than masters, and graduate certificate students and undergraduate students rated affiliation to their program/institution higher than master's and graduate certificate students.

Keywords: online learning, higher education, distance education, community, affiliation

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Even before the COVID-19 pandemic, online learning had a strong foothold in higher education (Muljano & Luo, 2019; Seaman et al., 2018). Benefits of distance learning (e.g., reduced physical boundaries, reduced delivery costs, accommodated flexible schedules) are well documented in research literature (Bolliger et al., 2019; Exter et al., 2009; Kang & Pak, 2023; Trespalacios et al., 2021). Because physical presence is not required on campuses of higher education, non-traditional students increasingly frequent online degree programs (Milman et al., 2015; Pigliapoco & Bogliolo, 2008; Stephen et al., 2020). Indeed, half of all students enrolled in distance education courses take them exclusively (Seaman et al., 2018). Although distance education is a popular choice for working professionals, it is not without challenges. Student and instructor isolation, miscommunication, and increased attrition are common discussions in distance education research. Various approaches have been used to combat these challenges, including setting clear expectations, establishing open and honest communication, embedding instructor and student presence, and providing timely feedback (Jaggars & Xu, 2016; Lehman & Conceição, 2010; Rockinson-Szapkiw & Wendt, 2015; Smith et al., 2017; Speiser et al., 2022). An additional approach is the establishment of a sense of community.

Community is "a feeling of belonging, affiliation, purpose, and interdependence that exists among instructors, support staff, students, alumni, and program, college, or university friends as they collaborate and progress on shared learning goals and activities over time" (Shepherd & Bolliger, 2022, p. 2). As participants interact with each other, feelings of comfort and membership increase. These feelings can lead to a sustained sense of community (Larson & James, 2022; Lehman & Conceição, 2010; O' Shea et al., 2015; Palloff & Pratt, 2007; Rovai, 2001; Shepherd & Bolliger, 2019). Community formation and maintenance has received much attention from a course perspective as programs strive to reduce the challenges associated with distance education (Boston et al., 2016; O' Shea et al., 2015; Rockinson-Szapkiw & Wendt, 2015; Speiser et al., 2022; Thormann & Fidalgo, 2014).

However, lesser attention has been placed on the establishment of sustained program and institutional networks, commonly found in face-to-face programs, and their role in online community formation (Bolliger et al., 2019; Dennis et al., 2016; Kang & Pak, 2023; Milman et al., 2015; Shepherd & Bolliger, 2019; Trespalacios et al., 2023; Xu & Jaggars, 2013). Formal and informal interactions (e.g., hallway conversations, guest speakers, dinner meetings, research partnerships, interest groups) help students and faculty develop a sense of membership that extends beyond course settings (Kang & Pak, 2023; Schulz & Roßnagel, 2010; Soukup, 2006). Failing to consider community at the program and institutional level can result in students who feel comfortable within current courses yet distanced from faculty, alumni, and other students (Exter et al., 2009; Shepherd & Bolliger, 2019). Focusing community formation and maintenance within courses may also tax faculty abilities and resources (Bolliger et al., 2019; Larson & James, 2022; Shepherd & Bolliger, 2019). This study evaluated online students' perceptions of community beyond course settings and the perceived effectiveness of activities meant to promote program community. Research questions included:

1. How important is community among online degree seeking students?

2. Which program and institutional initiatives influence perceptions of community among online degree-seeking students?

3. How are student perceptions of community influenced by individual differences (e.g., ethnicity, classification, distance from a campus, and time spent in online degree programs)?

Literature Review

Community development has a rich history in online education. Derived in part from psychological research regarding physical communities and the sense of belonging developed over time as individuals interact with each other, online community research sought to instill and maintain a similar sense of belonging in online learning settings (O' Shea et al., 2015; Speiser et al., 2022; Thormann & Fidalgo, 2014; Trespalacios et al., 2021). Although various physical community models exist, most suggest that interaction through shared experiences over time results in a sense of closeness or trust that increases one's investment in the community, raises one's level of influence, and provides a sense of membership (Glynn, 1981; Graves, 1992; McMillan & Chavis, 1986; Westheimer & Kahne, 1993). As research on physical communities progressed, proponents became interested in community formations unbounded by physical locations, shifting the focus to online communities (Rovai, 2001; Trespalacios et al., 2021, 2023).

The majority of online learners in higher education are non-traditional students that live within 50 miles of their institution (Seaman et al., 2018; Stephen et al., 2020; Xu & Jaggars, 2013). Generally, these learners are older than traditional students, may have family or dependent care responsibilities, and manage full-time employment (Milman et al., 2015; Seaman et al., 2018; Stephen et al., 2020; Wladis et al., 2015). They are also more likely to have specific goals associated with higher education (Merriam & Caffarella, 1999). These students come with different needs and interests than traditional, on-campus students (Milman et al., 2015; Trespalacios et al., 2023).

Instructors can take steps to facilitate entrance into online courses. Careful space design can clarify navigation, identify desired learning outcomes, structure content, and indicate processes used for learning (Jaggars & Xu, 2016; Muljana & Luo, 2018; Speiser et al., 2022; Sun & Chen, 2016). These structures may clarify expectations and reduce perceptions of distance that arise in online settings (Moore, 2007; Palloff & Pratt, 2007; Sun & Chen, 2016). Clear expectations may promote a sense of safety and trust within the space as students gain clarity regarding procedures for success (Erdoğmuş et al., 2022; Speiser et al., 2022).

Additionally, instructors can design opportunities for communication between students and themselves. As students respond to other's posts, participate in group activities, and receive detailed instructor feedback, a greater sense of community forms (Dzubinski, 2014; Erdoğmuş et al., 2022; Larson & James, 2022; Milman et al., 2015; Rockinson-Szapkiw & Wendt, 2015; Shackelford & Maxwell, 2012). Regular interaction through communication and group activities may reduce feelings of isolation as students get to know each other better, recognize they are not alone in their courses and degree programs, identify shared ideas and interests, and gain greater voice and respect. Interaction with others may also highlight shared experiences with students and instructors, promoting further interaction and future collaboration.

However, community formation requires resources that may not be available in courses (Bolliger et al., 2019; Borup et al., 2020; Muljana & Luo, 2019; Schulz & Roßnagel, 2010). Community proponents stress that development occurs through interactions with others over extended periods of time (Bellah et al., 1985; Liu et al., 2007; Smith et al., 2017; Wellman, 1979). Four to fifteen-week courses may provide insufficient time for interactions to move beyond a sense of belonging and shared interests into relationships with shared goals, reciprocity, and interdependence (Motteram & Forrester, 2005). Indeed, in a review of Community of Practice literature in online/hybrid settings, Smith et al. (2017) found that while many proponents claim time is needed to form a sense of community, few researchers have examined time as a factor for community development. Extended timeframes around program progression and matriculation may be required to deepen relationships (Pifer & Baker, 2016). Additionally, it may not be feasible for course instructors to provide the services required for community development and maintenance (Bolliger et al., 2019; Fong et al., 2016; Glazer et al., 2013). Educators already serve various roles in online settings, including content instructor, mentor, technology trainer, multimedia developer, and course manager (Huang & Chou, 2015). Added responsibilities are rarely recognized or compensated and may tax instructor abilities to perform other job duties (Bolliger et al., 2019; Larson & James, 2022).

Services provided by higher education institutions, degree programs, and other entities may move beyond restricted course timelines, continue student and instructor interaction, and provide additional opportunities for goal alignment, collaboration, and community formation (Lee & Choi, 2011; Milman et al., 2015; Muljana & Luo, 2019; Trespalacios et al., 2023). Institutions provide library and research-support services, writing centers, guest speakers, career services, support groups, student clubs and organizations, and so forth. Programs provide orientations, socials, advising, program milestones, guest lectures, research collaborations, and opportunities for conference presentations. These services may support community development. Indeed, Palloff and Pratt (2007, p. 27) suggested "the class community would fit within the larger concept of community at the institutional level… the institution forms the larger community…." This suggestion of multiple layers of online community aligns with community of practice principles, where one's participation in larger social systems and involvement in additional communities influence their feelings of membership (Lave & Wenger, 1991; Smith et al., 2017).

Demographic factors may also influence desired community support. Wladis et al. (2015) and Xu and Jaggars (2013) found that non-White males were underrepresented in online STEM programs at community colleges, even when accounting for differences in SES and academic preparation; however, they found higher representations of women in online courses than in the general college population. Milman et al. (2015) found that students from underrepresented groups were more likely to value career and counseling services than their Caucasian peers. Indeed, some students indicate that they have no desire for online community (Exter et al., 2009; O' Shea et al., 2015; Shepherd & Bolliger, 2019).

Although community proponents describe community layers within higher education settings, less research is conducted on these layers, focusing predominantly on classroom practices (Bolliger et al., 2019; Exter et al., 2009; Glazer et al., 2013; Thormann & Fidalgo, 2014; Trespalacios et al., 2021). Thus, a gap in the literature exists regarding student perceptions of program and institutional support and their influence towards online community development

that extends beyond single online courses. In 2019, Shepherd and Bolliger conducted a small-scale study of graduate student perceptions regarding community outside of single courses. The purpose of this survey-based cross-sectional research study is to further examine these perceptions on a larger scale among online undergraduate and graduate students and investigate which events and activities support program and institutional community.

Methods

The study used a survey-based research design to collect data from university students with the use of a newly developed instrument by the researchers. The survey-based design was selected to reach a larger population from which to draw a sample to obtain a numeric description of perceptions of university students in online programs (Creswell, 2009) at one institution of higher education in the southeastern United States regarding online community, and to provide researchers with the ability to generalize the findings to a larger population at similar settings and learning environments.

Participant Selection and Implementation

Following Institutional Review Board approval from institutions associated with the principal researchers, we requested the names and contact information of all undergraduate and graduate students enrolled in online degree programs at a midsize, urban university located in the Southern United States during the fall 2021 semester. This resulted in a list of 2033 students.

Beginning midsemester, we emailed participants four times. Email messages briefly described the study purpose, its voluntary nature, and benefits and limitations of participating. It also provided a link to the anonymous survey, housed in Qualtrics. When participants selected the survey link on the email invitation, they were provided with the study's purpose and a list of benefits and limitations. They were also informed that submitting the survey explicitly expressed their informed consent to participate. Completers were able to register for the drawing of one of ten $10 gift cards by providing a name and email address in a Google form. In accordance with Dillman et al. (2014), weekly reminder/thank-you emails about the survey were sent for three weeks. However, at the conclusion of the fall 2021 semester, about 200 students had responded to our survey. To increase participant numbers, we sent four additional reminder emails to the same group of students midway through the spring 2022 semester.

Instrument

The Sense of Online Community Scale (SOCS) is a 28-item instrument that asks respondents about the importance of community in their degree program and the extent that various program and institutional events and activities influence perceptions of community. Items on the instrument used a 5-point Likert-type scale that ranged from 1, *strongly disagree* to 5, *strongly agree.* A *not applicable* option was also provided for each item.

Items 1 to 6 focused on the importance of community and its elements (e.g., "The following are important to help me develop a sense of program community: Trusting others in my program." "Feeling that I belong in my program."). Items 7 to 16 focused on program-specific elements of community (e.g., "The following program elements help me feel like I am part of a program community: Opportunities to participate in faculty research." or "Student-initiated social activities within my program."). Items 17 to 28 focused on institutional activities

that influence perceptions of community. One open-ended question asked respondents to indicate what contributed to their sense of community. The SOCS also included seven questions regarding characteristics of students' programs (e.g., undergraduate versus graduate, predominantly synchronous versus asynchronous, cohort-based) and four questions about student demographics (e.g., ethnicity, age, gender, and physical distance from campus).

Prior to the administration of the instrument, the scale underwent a review by an expert panel. Four experts who either held the rank of associate or full professor and who had at least six years of online teaching experience in higher education participated in the review. Additionally, these experts have conducted extensive research in the area of online learning, such as course design, course community, student satisfaction or student engagement. After the data were collected, a confirmatory factor analysis was conducted to validate the instrument. Results indicated the SOCS was a valid and reliable instrument. Model fit estimates were either good or acceptable to the data ($\chi^2 = 812.78$, $df = 340$; CFI = 0.86; RMSEA = 0.08; SRMR = 0.07) (Shepherd et al., 2023). Internal reliability coefficients were also calculated for the instrument and its subscales. The instrument's Cronbach alpha was 0.94. The reliability for all subscales was acceptable (see Table 1).

Table 1
Reliability for Subscales

Subscale	No. of items	Cronbach's α
Importance	6	0.82
Program/Academic	6	0.80
Program/Social	4	0.88
Institution/Academic	6	0.87
Institution/Social	4	0.88
Affiliation	2	0.84

Data Analysis

In total, 319 students responded to the survey. However, 26 cases were deleted because one-third or more of data was missing. The data set included 16 outliers ($z = \pm 3.0$); however, these cases were not deleted. This resulted in 293 valid cases and a 14.4% response rate. Frequencies, mean scores, and standard deviations were generated. Correlation coefficients were calculated to detect relationships between subscales. Analysis of variance and independent *t* tests were conducted to analyze differences in participants' responses based on students' ethnicity,

classification, distance from a campus, and time spent in their online degree program. Responses to one open-ended question were analyzed qualitatively for themes and frequencies using open-coding and constant comparison techniques (Creswell, 2012; Patton, 2002).

Participants and Program Characteristics

The demographics and characteristics of respondents are displayed in Table 2. Participants' ages ranged from 19 to 74 (M = 39.5, SD = 11.8). Their time in their current online program ranged from 0 to 6 years (M = 1.69, SD = 0.84). Most participants were in their first (44.7%) or second year (40.1%) of their programs. Only 15.3% of students had been in their current programs longer than two years. When asked whether they lived within a 1-hour commute to a main or satellite campus, 51.0% answered *yes*, 48.6% answered *no*, and 0.3% were *unsure*.

Table 2
Demographics of Participants

Demographics	*n*	%	Characteristics	*n*	%
Gender (N = 287)			Program (N = 288)		
Female	235	81.9	Undergraduate	141	49.0
Male	47	16.4	Graduate certificate	16	5.6
Prefer not to say	3	1.0	Master	80	27.8
Non-binary	1	0.3	Doctoral	45	15.6
Other	1	0.3	Other	6	2.1
Ethnicity (N = 281)			College (N = 287)		
White/Caucasian	146	52.0	Business & economics	59	20.6
African American	97	34.5	Professional & liberal studies	53	18.5
Latinx	8	2.8	Education	47	16.4
Asian	7	2.4	Arts & sciences	35	12.2

Hispanic	5	1.8	Health sciences	32	11.1
Bi-ethnic	5	1.8	Nursing	23	8.0
Not applicable	4	1.4	Public health	16	5.6
European	2	0.7	Unsure	16	5.6
Multi-ethnic	2	0.7	Communication & fine arts	5	1.7
Native American	2	0.7	Communication sciences & disorders	1	0.3
Pacific Islander	1	0.4			
Other	2	0.7			

Respondents' details pertaining to their programs are displayed in Table 3. Most participants were enrolled in programs that were delivered asynchronously (82.3%), and 46.9% of students were not in cohort-based programs. Of those who indicated they were enrolled in a cohort-based program (n = 66), 84.8% felt the cohort helped them feel part of a program community, whereas 4.5% felt it did not. Some students (10.6%), however, were unsure. Most students reported they were not required to attend in-person meetings (94.1%).

Table 3
Program Characteristics (N = 288)

Characteristics	*n*	%
Delivery		
Asynchronous	237	82.3
Synchronous	8	2.8
Combination	40	13.9
Other	3	1.0
Required meetings		

Yes	11	3.8
No	271	94.1
Unsure	6	2.1
Cohort-based program		
Yes	66	22.9
No	135	46.9
Unsure	87	30.2

Results

Research Question 1: Importance of Online Program Community

The first section of the survey asked participants about their perceptions of the importance of community and elements that may contribute to their feelings of community. The majority of online students who participated in the study (72.0%) *agreed* or *strongly agreed* that a sense of community in their programs is important ($M = 3.95$); only 10.9% of respondents *disagreed* or *strongly disagreed* with this statement (Table 4). Over 80% of participants *agreed* or *strongly agreed* that the following elements were important in the formation of community: feeling a sense of belonging (88.8%), affiliation (85.6%), and trust (81.9%). In contrast, having similar interests and experiences with others was less important. The element of belonging had the highest mean score ($M = 4.36$), whereas the element of similar experiences had the lowest mean score ($M = 3.70$).

Table 4

Descriptives and Frequencies for Importance Subscale Items ($N = 293$)

Item	Percentage				*M*	*SD*
	SD/D	*N*	*A/SA*	*N/A*		
1. Having a sense of community in my program (e.g., a sense of belonging, interconnection, trust) is important to me.	10.9	17.1	72.0	0.0	3.95	1.09
The following are important to develop a sense of program community:						

2. Trusting others in my program.	3.1	14.3	81.9	0.7	4.17	0.82
3. Having similar interests with others in my program.	8.5	22.5	68.3	0.7	3.89	0.95
4. Having similar experiences with others in my program.	13.7	25.9	59.4	1.0	3.70	1.03
5. Feeling that I belong in my program.	4.4	5.8	88.8	1.0	4.36	0.86
6. Feeling that I am affiliated with my program.	4.1	9.6	85.6	0.7	4.33	0.86

Note. Scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). *N/A* = not applicable.

Research Question 2: Activities that Influence Student Perceptions of Program Community

The next two subscales of the survey included items pertaining to academic and social activities offered to students in online programs. All items in the subscale pertaining to academic activities offered by the program had a mean score above 3.00 (Table 5), indicating they assist students develop a sense of program community in online programs. However, a high percentage of participants responded *neutral* to items 12 (taking required courses outside of the program, such as statistics) and 9 (participating in faculty research), 31.4% and 27.3% respectively. The two items that had the highest mean scores pertaining to elements that made them feel like a part of an online program community were items 8, completing program milestones ($M = 4.10$), and 11, sharing professional resources ($M = 4.08$).

Table 5

Descriptives and Frequencies for Program/Academic Subscale Items ($N = 293$)

Item	Percentage				*M*	*SD*
	SD/D	*N*	*A/SA*	*N/A*		
The following elements help me feel like I am part of a program community:						
7. Program advising activities (e.g., orientations, retreats, guidance regarding course selection)	11.3	14.7	70.0	4.1	3.95	1.05
8. Completion of program milestones (e.g., portfolios, exams, defenses)	7.5	12.3	79.5	0.7	4.10	0.95
9. Opportunities to participate in faculty research (e.g., research groups, presentations, publications)	9.2	27.3	60.1	3.4	3.80	0.98
10. Opportunities to attend academic program events outside of courses (e.g., guest lectures, internships, field trips, professional meetings)	10.6	17.4	66.2	5.8	3.88	1.05

11. Professional resource sharing with others in my program (e.g., job postings, conference announcements, calls for proposal, professional services)	6.8	14.7	75.1	3.4	4.08	0.92
12. Taking required courses that include students from outside the program (e.g., statistics, writing)	15.0	31.4	50.1	3.4	3.55	1.08

Note. Scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). *N/A* = not applicable.

In general, respondents agreed less with program initiated social activities being helpful in developing a sense of community compared to academic activities. All items in this subscale had a mean above 3.00 but below 4.00 (Table 6). The two items with which respondents had the highest agreement were items 14 (virtual or remote social activities) and 16 (professor-initiated social activities); over 60% of individuals *agreed* or *strongly agreed* with these statements. These two items also had the highest mean, 3.71 and 3.69 respectively. In-person social activities did not apply to 13.3% of participating online students. These students most likely lived too far from a campus, or these activities were not offered to students who studied via distance.

Table 6

Descriptives and Frequencies for Program/Social Subscale Items (*N* = 293)

Item	Percentage				*M*	*SD*
	SD/D	*N*	*A/SA*	*N/A*		
The following elements help me feel like I am part of a program community:						
13. In-person social activities within my program (e.g., picnics, parties, get-togethers)	18.4	26.3	42.0	13.3	3.39	1.17
14. Virtual or remote social activities within my program (e.g., social media posts, online games, chat rooms)	15.7	17.4	62.8	4.1	3.71	1.11
15. Student-initiated social activities within my program	16.0	25.3	52.6	6.1	3.56	1.10
16. Professor-initiated social activities within my program	13.0	22.2	60.4	4.4	3.69	1.06

Note. Scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). *N/A* = not applicable.

Respondents were also asked to share their levels of agreement pertaining to academic and social activities offered by their universities that helped them develop a sense of program community. The academic activity items with the highest agreement were 20 (institutional academic support) and 21 (institutional career services). Over 70% of participants *agreed* or *strongly agreed* with these items, and they had the highest means in this category (Table 7). The least helpful activity was the use of special interest groups, such as social media or research groups offered by the institution.

Table 7
Descriptives and Frequencies for Institution/Academic Subscale Items (*N* = 293)

Item	Percentage				*M*	*SD*
	SD/D	*N*	*A/SA*	*N/A*		
The following institutional elements help me feel like I am part of a program community:						
17. Academic events for multiple programs (e.g., capstone meetings, retreats, guest speakers, research days/symposia)	10.9	20.5	63.9	4.8	3.76	0.97
18. Student organizations associated with my program	10.6	21.5	63.9	4.1	3.77	1.00
19. Institutional wellness supports (e.g., personal counseling, health centers, fitness centers)	10.6	20.1	61.7	7.5	3.79	1.06
20. Institutional career services (e.g., career counseling, interview support, resume building)	8.2	14.0	73.7	4.1	3.99	1.01
21. Institutional academic supports (e.g., writing centers, tutoring, library and research services)	7.5	13.3	76.1	3.1	4.06	0.98
22. Voluntary interest groups (e.g., social media groups, study or research group)	10.2	26.3	59.4	4.1	3.72	1.02

Note. Scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). *N/A* = not applicable.

In the institutional social activity category, items had mean scores between 3.55 and 3.82 (Table 8). The statement with the highest agreement (63.8%; *M* = 3.82) was item 23 (institution-wide equity and inclusion initiatives), whereas the item with the lowest agreement (50.8%; *M* = 3.55) was item 24 (institution-wide sports events).

Table 8
Descriptives and Frequencies for Institution/Social Subscale Items (*N* = 293)

Item	Percentage				*M*	*SD*
	SD/D	*N*	*A/SA*	*N/A*		
The following institutional elements help me feel like I am part of a program community:						
23. Institution-wide initiatives regarding equity and inclusion	9.9	21.8	63.8	4.4	3.82	1.03
24. In-person or remote institution-wide sporting events (e.g., football, basketball, soccer)	16.0	25.6	50.8	7.5	3.55	1.15
25. In-person or remote institution-wide fine and performing arts events (e.g., plays, concerts, ballets, art galleries)	13.3	23.2	57.7	5.8	3.65	1.07
26. In-person or remote institution-wide celebrations (e.g., homecoming, graduation, Veteran's Day celebrations)	10.9	24.9	59.1	5.1	3.71	1.03

Note. Scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). *N/A* = not applicable.

Open-Ended Question Responses

An open-ended question asked respondents what contributed to their sense of community in their online program. Figure 1 depicts the top 10 responses. Of the 293 participants, 36 did not respond. An additional 21 indicated "nothing," "I don't have a sense of community in this program," or "N/A." Within the 236 remaining responses, 48 indicated a connection or interconnection with faculty members and students and 30 mentioned a sense of belonging. Representative comments included "Sense of belonging, I feel I have a seat at [t]he table" and "feels like home." Twenty-seven individuals mentioned "trust."

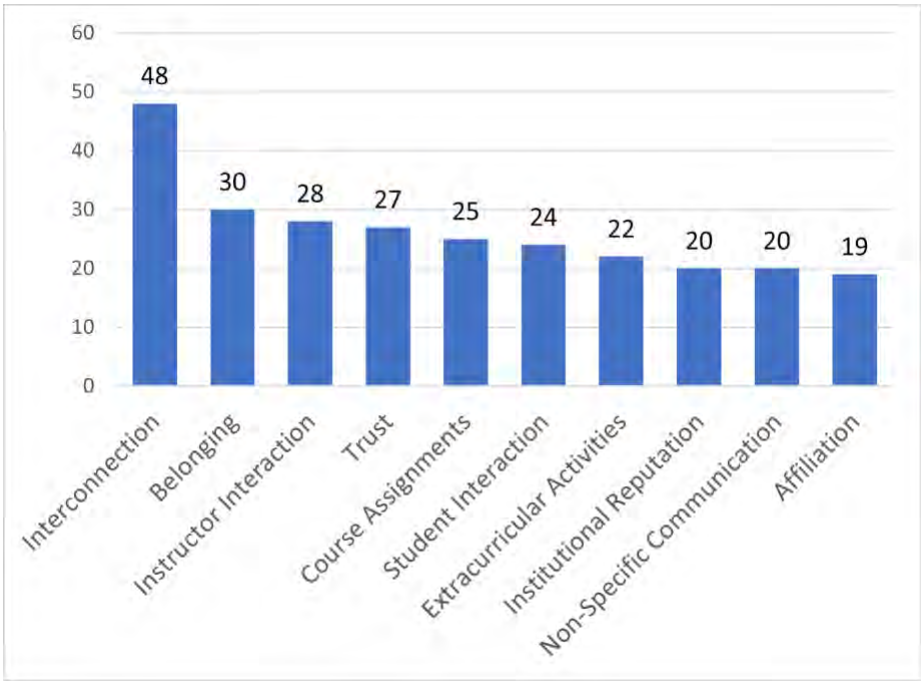
Interactive events also contributed to a sense of community. Twenty-two respondents mentioned specific program activities (e.g., "co-writing research papers," "social activities," "accessible online clubs and organizations," "virtual and in-person activities"). Twenty-eight mentioned instructor interactions, 24 mentioned student interactions, and 20 mentioned non-specific forms of communication (e.g., "communicating with others in my program," "communication").

Additionally, 20 respondents mentioned the reputation of the institution, sport teams, and other institution-wide resources as sources of community. Nineteen students mentioned affiliation specifically, though it was unclear whether affiliation related to their degree program or the institution. Yet, 13 respondents directly mentioned seeing the same students in multiple classes (through cohort programs) as a community contributor. Additionally, 25 respondents tied

course activities and assignments to their sense of community. Representative comments included "classes/schoolwork, projects, books, exams, quizzes, etc. …." One person wrote,

> Interpersonal interactions through the on-line course can bring about new friendships-professional and/or personal. Through coursework & required assignment(s), opportunities may arise to begin to form these relationships. Team building enhances and contributes to my overall sense of community belonging.

Figure 1
Community Contributors by Response Frequency (*N* = 257)



Note. Individuals were able to record multiple responses.

Lastly, participants were asked to respond to statements about their sense of affiliation with their online programs and universities. Most students (58.7%) *agreed* or *strongly agreed* they had a strong affiliation with their online program (*M* = 3.61). A slightly higher percentage (62.5%) had a strong affiliation with the institution they attended. However, over 20% marked *neutral* for both statements (Table 9).

Table 9
Descriptives and Frequencies for Affiliation Subscale Items (*N* = 293)

Item	Percentage				*M*	*SD*
	SD/D	*N*	*A/SA*	*N/A*		
27. I have a strong affiliation (e.g., sense of membership) with my current online program.	19.5	20.1	58.7	1.7	3.61	1.19
28. I have a strong sense of affiliation with my current university.	16.0	20.8	62.5	0.7	3.69	1.13

Note. Scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). *N/A* = not applicable.

Descriptive statistics for all subscales are displayed in Table 10. The importance subscale had a relatively high mean score (*M* = 4.05), which indicates that many students associate value with having a sense of community in their online program. Of the four activity subscales, the academic activities offered by the program had the highest mean (*M* = 3.80), whereas the program/social subscale had the lowest mean score (*M* = 3.47). Overall, students indicated that activities that help build community were somewhat important. However, they perceived social events and activities—offered by both the program and the institution—as less important than academic events and activities.

Correlation coefficients among the six subscales were calculated. Using the Bonferroni approach to control for Type I error across the 15 correlations, a *p* value of less than 0.003 (.05/15 = .003) was required for significance. Results in Table 10 show that all correlations were statistically significant and were greater than or equal to 0.34. Results show that the lowest correlation (*r* = .34) was between the program/social and affiliation subscales, whereas the highest correlation coefficient (*r* = .74) was between the institution academic and social subscales.

Table 10
Descriptive Statistics and Correlations for Subscales

Subscale	*n*	*MD*	*SD*	1	2	3	4	5	6
1. Importance	292	4.05	0.70	-					
2. Program/Academic	289	3.80	0.80	.40**	-				
3. Program/Social	281	3.47	1.04	.41**	.61**	-			

4. Institution/Academic	287	3.74	0.87	.42**	.63**	.66**	-	
5. Institution/Social	285	3.57	0.98	.35**	.53**	.58**	.74**	-
6. Affiliation	290	3.64	1.08	.39**	.46**	.34**	.39**	.40**	-

Note. **$p < .01$ (2-tailed). Scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

Research Question 3: Individual Differences in Responses

Ethnicity

Similar to Milman et al. (2015) respondents were categorized into White and non-White based on their write-in responses because of the large representation in both groups. Independent samples *t* tests were conducted to evaluate whether ethnicity had an influence on students' responses. The test was significant for the affiliation subscale, $t(271) = -4.331$, $p = .008$; $d = -.525$. Non-White students ($M = 3.94$, $SD = 0.94$) felt more affiliated with their program and institution compared to White students ($M = 3.39$, $SD = 1.14$). The effect size for this analysis (Cohen's D) indicated a medium effect.

Classification

Respondents were recategorized into three groups: (1) undergraduate, (2) master's and graduate certificates, and (3) doctoral students. A series of ANOVAs were conducted to evaluate students' responses on the subscales. The tests were significant for program academic activities, $F(2, 277) = 3.21$, $p = .04$ and affiliation, $F(2, 276) = 3.81$, $p = .02$. The effect sizes were relatively small, $\eta^2 = .023$ and $\eta^2 = .027$, respectively.

Dunnett's *C* follow-up tests were conducted to evaluate pairwise differences among the means because equal variances among the three groups were not assumed and group sizes were unequal. There was a significant difference in the means between master's/graduate certificate students and doctoral students for the program academic activity subscale. Doctoral students had a higher mean on the program activities subscale than students in master's/graduate certificate programs (Table 11). There was also a significant difference in the means between undergraduate and masters/certificate students on the affiliation subscale. Undergraduate students had a significantly higher mean than master's/graduate certificate students on the affiliation subscale (Table 12). While doctoral students had a higher mean score than master's/certificate students, the difference in mean scores was not statistically significant, possibly due to unequal group sizes—there were twice as many master's/graduate certificate students than doctoral students in our sample.

Table 11
95% Confidence Intervals of Pairwise Differences in Means for Three Groups for the Program Academic Activities Subscale (*N* = 280)

Group	*M*	*SD*	Group 1	Group 2
Undergraduate	3.81	0.90		
Master's/Certificate	3.64	0.75	[-0.09, 0.43]	
Doctoral	4.01	0.70	[-0.51, 0.11]	[0.06 to 0.68*]

Note. An asterisk indicates that the 95% confidence interval does not contain zero, and therefore the difference in mean is significant at the 0.05 significance using Dunnett's *C* procedure.

Table 12
95% Confidence Intervals of Pairwise Differences in Means for Three Groups for the Affiliations Subscale (*N* = 279)

Group	*M*	*SD*	Group 1	Group 2
Undergraduate	3.75	1.05		
Master's/Certificate	3.40	1.14	[0.01, 0.70*]	
Doctoral	3.81	0.95	[-0.47, 0.34]	[-0.03 to 0.86]

Note. An asterisk indicates that the 95% confidence interval does not contain zero, and therefore the difference in mean is significant at the 0.05 significance using Dunnett's *C* procedure.

Distance

To determine whether students who lived within a 1-hour commute responded differently compared to those students who did not, independent samples *t* tests were conducted. The test was significant for the institution/social subscale, $t(278) = 2.88$, $p = .007$; $d = .344$. Participants who lived within a 1-hour commute to a main or satellite campus had higher mean scores ($M = 3.73$, $SD = .87$) compared to those who did not ($M = 3.39$, $SD = 1.10$). The effect size was relatively small.

Time in Program

Independent samples *t* tests were conducted to evaluate differences in students' responses based on time in the online program. Participants were grouped into two groups, 0 to 1 year and more than 1 year because so many of our participants were in their first and second year of their programs. Results were not significant on any of the subscales.

Discussion and Recommendations

Importance of Community

Results indicate that most students (72.0%) *agreed* or *strongly agreed* that a sense of community in their program is important. Additionally, most students felt that a sense of belonging, trust and affiliation with their program was important. However, 10.9% of participants *disagreed* or *strongly disagreed* that a sense of community in their program is important, aligning with findings from other studies (Bolliger et al., 2019; Exter et al., 2009; O' Shea et al., 2015; Shepherd & Bolliger, 2019). Those who do not place importance on community may have other professional and personal support systems and their primary goal may be to complete the degree (Bolliger et al., 2019; Exter et al., 2009). Yet, because most students desire a sense of community, limiting services under the assumption that students do not care seems ill-supported (Milman et al., 2015; Muljana & Luo, 2019). Students have differing needs at differing times of their educational experience (Pifer & Baker, 2016). That said, a desired community may not translate into use of services. Some faculty became reticent to provide social activities in online programs because of low student participation (Bolliger et al., 2019). We argue that the responsibility to support community development and sustain community for online learners lies with institutions and academic program personnel. Both provide myriad services for learners who are physically on campus. Therefore, online learners—whether they are truly at a distance or within close proximity to a campus—should have similar opportunities to partake in social and academic activities that support *their* academic community.

However, institutions and programs may have to better communicate the underlying goals regarding extracurricular social and academic events to encourage participation. Most online students are nontraditional. They have alternative social networks, employment, family responsibilities, and other duties that compete for time and attention (Kang & Pak, 2023; Milman et al., 2015; Stephen et al., 2020; Wladis et al., 2015). Promoting non-course-related activities (whether academic or social) may first appear superfluous and time-intensive. Instruction and program administrators may need to help students realize that these events are developed to reduce course hierarchies, provide opportunities for informal dialogue and interest exploration, promote shared experiences, and encourage a sense of belonging, trust, membership, and collaboration that can lead to deeper professional and goal-directed experiences. Of course, activity planners and promoters must realize that attendance is ultimately dependent on student interests, availability, and other factors. However, communicating the underlying purposes of social and academic events may increase perceptions of relevance and interest.

Activities and Affiliation

Twenty-five participants directly tied community formation to course activities while responding to the open-ended question. This aligns with prior literature regarding community formation in online courses (e.g., Erdoğmuş et al., 2022; Larson & James, 2022; Trespalacios et al., 2021). Course projects, interactions, and activities provide necessary components to develop a sense of community. They should not be ignored when institutions and programs strive to promote and maintain community among their students.

However, most participants also recognized the need for academic and social community at the program and institutional level. On the program level, students rated milestones, resource sharing, and professor-initiated and remote social activities highest. On the institutional level,

highly rated activities included academic support and career services, equity and inclusion initiatives, and institution-wide celebrations (among others). These findings align with those of Lee and Choi (2011), Trespalacios et al. (2023), and Muljana and Luo (2019) who found institutional and program services of use to online students for community-building purposes. Students also rated academic activities higher than social activities. These findings align with those of Skelcher et al. (2020) where online learners desired a variety of program and institutional services, including relevant emails to distance students, cohort programs, and similar services available to campus students. Yet, our findings suggest that social activities, even on-campus activities, were considered important to distance students. This finding differs from that of O' Shea et al. (2015) where on-campus activities further isolated distance students by reminding them of their inability to participate.

Distance to Campus

One reason for this difference may be based on the number of distance students located within close proximity to campus. Seaman et al. (2018) found that most online students lived within 50 miles of campus. Because the university in question is situated within a metropolitan area, we considered travel distance as a better indicator of proximity (Xu & Jaggars, 2013). Regardless, 51% of respondents indicated they lived within one hour of the main or a satellite campus. These proximate participants also rated institutional social activities higher for community formation. Although on-campus activities may isolate distance students that are unable to attend (O' Shea et al., 2015), they should not be dismissed as irrelevant for online community development. Students may live or work near a campus and have the ability to attend on-campus events such as advising sessions, brown bag lunches, graduate student defenses, college or institutional conferences, art exhibits, sporting events, and so forth. Even if they do not live within close proximity, students may be able to visit for one day. Some of them may be able to combine the attendance of an academic or a social event to meet with their advisor or committee members, tour the campus, or take advantage of services the campus library, employment services, or the writing center offers. Yet, on-campus services should not be solely relied upon for institutional and program community support. Distance services should support distance students, meeting their unique needs and fostering their sense of belonging to the larger institution (Shepherd & Bolliger, 2023; Milman et al., 2015). Indeed, more research is needed regarding the optimal frequency and sequence of academic and social events to sustain a sense of community and how they should be distributed among programs and institutions.

Underrepresented Participant Perspectives

Larson and James (2022) described how marginalized students require additional services to navigate higher education because they may be less accustomed to the rules and traditions of that setting. Online learning may exacerbate these problems as perceptions of isolation increase. Of the 287 participants who identified their ethnicity, 97 (34.5%) characterized themselves as African-American/Black and 32 (11.4%) as another underrepresented group. Interestingly, underrepresented participants in online programs felt a higher sense of affiliation with their degree program and institution than White participants. Our survey did not provide specifics as to why these differences occurred. However, participants did not identify differences in desired academic and social activities. This finding differs from that of Milman et al. (2015), where non-White students were more interested in career and counseling services. Although our study did not compare individual items between groups, focusing instead on composite subscales, less than 11% of all respondents disagreed that career and health services contributed to their sense of

community. Most participants indicated a desire for these services. Despite our larger sample of non-White students in comparison to the other studies mentioned, additional research is needed to see if these findings replicate in other settings.

Graduate Classification and Time in Programs

Additionally, doctoral students had a higher mean score on the program activities subscale than master's and graduate certificate students. It can be difficult for doctoral students to acclimate to academia and connect with others in the program via distance (Pifer & Baker, 2016). Therefore, participating in faculty research projects, attending professional conferences, networking events, and sharing professional resources may be more important to doctoral students than to undergraduate or master's degree-seeking students. In a study conducted by Studebaker and Curtis (2021), doctoral students valued community and attributed the connections they made to their success. Furthermore, this study did not find statistically significant differences between students' time in the program. This differs from some research where differences were hypothesized or found when investigating online student connectedness, related to program community (Pifer & Baker, 2016; Shepherd & Bolliger, 2022; Trespalacios et al., 2021). For example, second-year graduate business students felt more connected than first-year students (Jamison & Bolliger, 2020). Although survey items do not provide additional insight, it is possible that students began with more experience and comfort managing online learning because of their prior experience during the COVID-19 pandemic. Additionally, the large majority of our participants were in the first two years of their program, providing only a limited view of time spent in most undergraduate and doctoral degree programs (Pifer & Baker, 2016). More research should capture a larger representation of degree type and time spent in programs to consider differences.

Limitations

This research includes some limitations. The participating institution and the sample were not selected at random. Second, the study is geographically limited to one, large, research-intensive, public institution in the southeast United States. This study also included fewer doctoral students ($n = 45$) than undergraduate and master's degree students, possibly limiting the representation of their ideas. Additionally, 82% of respondents were female. While this number aligns with other's claims regarding student makeup in online courses, (e.g., Wladis et al., 2015; Xu & Jaggars, 2013), it may limit the voice of males. Other researchers may replicate the study and include multiple sites, geographical areas, degree programs, demographic makeup, and different types of institutions based on the Carnegie Classification of Institutions of Higher Education (n.d.). Lasty, all data are self-reported. Readers are encouraged to interpret results with caution as results may not be generalizable.

Declarations

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