

The Role of Nonclassroom Spaces in Living-Learning Communities

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A body of research suggests that learning communities provide a range of academic benefits by increasing social connectedness. Researchers have also hypothesized that informal learning spaces — nonclassroom spaces (NCSs) — can facilitate learning by supporting social connectedness. This study uses qualitative methods to explore the way nonclassroom spaces facilitate learning-related activities within a recently established learning community at Michigan State University. Our findings suggest that NCSs function as social hubs, help make intellectual and creative work visible to the larger learning community, and provide access to important resources. More generally, NCSs help to facilitate community formation and identity.

Introduction

Learning — I think it happens all over. It happens all over.
[RCAH Student]

In fall 2009, students in the Residential College in the Arts and Humanities (RCAH), a residential college at Michigan State University, worked with visiting artist Doug DeLind to create a ceramic wall sculpture. Working in the college's Art Studio, each student created one or more ceramic tiles. Each tile was unique, but shared the same vertical dimension and visual style. The tiles were then assembled together to form a snake, approximately 20 feet long, which was hung in one of the central areas of the college, passed each day by RCAH students, faculty, staff, and guests.

The snake was vandalized a few months after it was installed. Most of the tiles were removed and stolen. This prompted a decisive response from RCAH students. They initially recreated the snake using temporary paper mockups of the missing tiles. They posted a large sign next to these efforts, reading "YOU CAN DESTROY OUR ART, BUT YOU CAN'T DESTROY RC" followed, in smaller letters, with, "Shame on you." Within a few months, the students and Doug DeLind had created a new version of the snake, which continues to be displayed in its original location.

In this anecdote, space performs several notable functions. It provides access to the specialized resources (people, raw materials, tools, etc.) necessary to create items related to an arts and humanities curriculum, in the broadest sense. Students created works of ceramic art in the Art Studio under the supervision of Doug DeLind. Space was subsequently used as a venue for the display of this creative work, allowing it to find an audience. Finally, and most

importantly, space was the site of community formation and expression. In response to the vandalism, the RCAH community came together to express solidarity and perseverance. The wall was a place where the community identified itself as a community and spoke back to individuals who had threatened it. Interestingly, none of the educational spaces that played a role in this incident were traditional classrooms. In this article, we document the way nonclassroom spaces (NCSs) function within a specific living-learning community.

Traditional Models of Higher Education

Current approaches to higher education can often result in student experiences characterized by fragmentation, isolation, and disengagement. Some of this fragmentation is due to the primary structures of education: discrete courses. Tinto (2003) observes that:

[M]ost students experience universities as isolated learners whose learning is disconnected from that of others [S]tudents typically take courses as detached, individual units, one course separated from another in both content and peer group, one set of understandings unrelated in any intentional fashion to what is learned in other courses. Though there are majors, there is little academic or social coherence to student learning. It is little wonder then that students seem so uninvolved in learning. (p. 1)

Similarly, Van Note Chism and Bickford (2002) draw attention to "the body of persistent, often tacit, assumptions that hamper our thinking and action": "learning only happens in classrooms"; "learning happens at fixed times"; and "learning is an individual activity" (pp. 93-94). These writers critique a model of higher education that sees learning as a function of discrete classroom experiences

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interspersed with isolated study. These classroom experiences are characterized by a certain degree of randomness with regard to where they are located (relative to other classes, to faculty offices, to student residences, or to other spaces valued by students) and to who participates (i.e., a student enrolled in a given course might encounter a completely different group of students in his/her next course).

Learning Communities

Learning Communities (LCs), which date back to the Experimental College developed by Alexander Meiklejohn at the University of Wisconsin in the 1920s, offer one alternative to the fragmented system just described (see Smith, 2001). According to Tinto (2003), most LCs have three things in common: (1) "shared knowledge" that results from studying a common theme; (2) "shared knowing" that results from enrolling in the same classes "so they get to know each other quickly and fairly intimately"; and (3) "shared responsibility," that results from students becoming invested in each other's learning (p. 2).

In their simplest iteration, LCs ask a group of students to take two courses that are linked together; such a system introduces a modest element of commonality into an otherwise fragmented system. More intensive LCs might involve more courses and might include thematic linkages (see Stassen for a presentation of various schemas for classifying LCs). A "living-learning community" (LLC) adds a residential dimension to an LC. In LLCs, students participating in common curricular structures also live in the same residence hall. A residential college (RC) is one particularly robust and intensive kind of LLC. RCs are typically relatively small and provide a common curriculum. Classrooms, faculty offices, and other learning spaces are all located in the students' residence hall, placing residential, recreational, and academic spaces in close proximity. This proximity is invoked in jokes about "rolling out of bed and going to class in pajamas." Our study focuses on a newly developed RC.

Research suggests that LCs foster greater success, as measured by a number of social and academic metrics. LCs seem to foster better rates of retention (Stassen, 2003; Tinto & Goodsell, 1993; Shapiro & Levine, 1999), better grades (Stassen, 2003; Tinto & Goodsell, 1993; Zhao & Kuh, 2004), and increased engagement/involvement (Stassen, 2003; Pike, Schroeder, & Berry, 1997; Tinto & Goodsell, 1993; Tinto, Love, & Russo, 1994; Zhao & Kuh 2004). LCs also foster student gains in autonomy and independence, intellectual dispositions and orientations, and generalized personal development (Pascarella & Terenzini, 1991, p. 261).

Importantly, several researchers have claimed that LCs foster greater social connectedness. Tinto found that LC students "tended to form their own self-supporting groups which ex-tended beyond the classroom" and "spent more time together out of class" compared to students who were not participating in an LC (Tinto, 2003, p. 5). Tinto also found that students adopt a more collaborative attitude about their own learning. Similarly, Stassen (2003) found that "students in LCs are significantly more likely to have contact with peers around academic work [and] engage in group projects" (p. 602). There is also some evidence that students who are participating in LCs have more interaction with faculty (Stassen, 2003; Zhao & Kuh, 2004).

Indeed, several researchers have claimed that the academic benefits of LCs derive from their ability to foster social connectedness. After analyzing National Survey of Student Engagement (NSSE) data associated with 80,479 students from 365 four-year colleges and universities, Zhao and Kuh (2004) conclude that "Participating in learning communities is uniformly and positive[ly] linked with student academic performance, engagement in educationally fruitful activities . . . , gains associated with college attendance, and overall satisfaction with the college experience" (p. 124). However, Zhao and Kuh (2004) align themselves with previous research (e.g., Pike, 2000), which suggests that "learning communities probably do not directly affect student gains; rather, learning communities provide a fertile environment for student growth through engagement with other influential agents of socialization, such as peers and faculty members" (p. 130). This echoes an earlier synthesis of research on LLCs by Pascarella and Terenzini (1991), who report that evidence from several sources seems to indicate that "the structural, organizational, and programmatic features of living-learning centers, it would appear, exert their influence on student change through the interpersonal relations they foster or facilitate among the major socializing agents," including students and faculty (p. 262).

For the purposes of this study, the salient characteristic of LCs is that they shift our attention away from single courses (and their associated classroom spaces) to broader considerations. Indeed, the important thing about LCs is what grows up in the interstices between courses and classrooms: the interactions students have with each other and with faculty, many of which seem to happen outside the confines of individual courses and classrooms.

Learning Spaces

Scholars who study learning spaces assert that space is not a neutral container, but is instead an opportunity to encourage, enable, and embody best teaching practices. It

has become common to refer to the "built pedagogy" (Monahan, 2002, p. 1; see also Oblinger, 2006, p. 1.1; Van Note Chism, 2006, p. 2.2). In the past, the "built pedagogy" tended to reflect traditional views of education as a largely individualized, disconnected activity that occurs in classrooms. As Hall observes, a focus on the classroom has led to an "educational architecture" characterized by "box rooms and connecting corridors" (p. i).

Against this traditional approach, many space theorists echo Van Note Chism and Bickford's (2002) assumption that "learning happens everywhere" (p. 94). Accordingly, scholars interested in educational spaces emphasize the importance of informal learning spaces as distinct from classrooms. These spaces should be designed to facilitate both intentional and chance interactions between students, faculty, and others (see Hall, 2010; JISC, 2006; Crook & Mitchell, 2012; Oblinger, 2006). Lomas and Oblinger (2006), for instance, write that "students spend a large proportion of their time outside class. . . . Spaces that catalyze social interaction, serendipitous meetings, and impromptu conversations contribute to personal and professional growth" (p. 5.6). Spaces should also be flexible, able to accommodate different kinds of learning and recreational activities. Finally, spaces should be integrated into clusters of proximately located specialized spaces (see, for instance, Brown, 2005; Jamieson, 2003; Oblinger, 2006; Van Note Chism & Bickford, 2002).

While the current study does not focus on a library, recent research on library spaces is relevant to our study. Many libraries have created spaces designed to facilitate social interaction and collaboration. These spaces — which include library "commons" (see Bonnard & Donahue, 2010) — are informal, flexible, multipurpose spaces. Many are equipped with comfortable furniture, large tables for collaborative work, and special technology provisions. Based on students' "mapping diaries," Clark (2007) and her colleagues at the University of Rochester concluded that the flexible, multipurpose nature of the library contributes to its ability to function as the "center" of students' daily routines; Clark writes that students "want a place to study, to check their e-mail, to meet their friends, to read, to write their papers, to kill time between classes, and to eat. Their ideal library would allow them to do all of these things easily under one roof" (p. 52). A few studies have documented that collaboration and social interaction happen in these spaces, though not always as much as one might expect or hope to see (see Bryant, Matthews, & Walton, 2009; Crook & Mitchell, 2012; James, 2013). James (2013) reports that one quarter of the students observed in the Collaborative Learning Center at East Carolina University's library were working independently. Based on a multifaceted study of a UK university library, Crook and Mitchell (2012) argue for a

more nuanced understanding of social interaction, and introduce the term "ambient sociality" to refer to the fact that "students appeared to gain inspiration or reassurance from merely being among others they knew were in a shared predicament: that is, one of intentional and systematic learning (i.e., 'study')" (p. 136).

Contributions of This Study

Research on LCs and on learning spaces provides a rich theoretical foundation for thinking about alternative approaches to learning; both of these bodies of research suggest a shift of attention from a narrow focus on discrete courses and classrooms to a broader view that spans academic, residential, and recreational spheres. Research on LCs, however, tends to sketch a broad portrait using quantitative data related to such metrics as attrition rates and grades. Moreover, most research on LCs does not attend to considerations of space. If students interact with each other and with faculty outside of class, there is little or no attention paid to the spaces where this social activity might occur or how the design of such spaces might support or constrain social activity.

Much writing about learning spaces, on the other hand, is speculative — the studies cited above notwithstanding. For instance, Bickford and Wright (2006) introduce the possibility that "student-faculty interactions can occur immediately before and after a class." It follows that the built environment should include "broad pathways (not corridors) [that] connect classrooms, with ample room for discussion and whiteboard use during class changes without impeding traffic flow" (p. 4.13). Whether or not such redesigned spaces actually encourage student-faculty interactions is not studied. Similarly, in his discussion of the Marianist Hall Learning Space at University of Dayton, Dittoe (2006) offers a lengthy narrative about "Marcy," a student using the space. But this story is "fictional" (p. 3.9). Similarly, Brown asks us to "to imagine what these new spaces might look like and how students would function in them" through hypothetical "scenarios" (p. 12.9). As Crook and Mitchell (2012) observe, "there remains little direct observation of what students actually do in these spaces" (p. 122).

The current study uses qualitative methods to understand how students use and perceive space within a specific, newly formed LLC located in a physical environment whose design reflects current thinking about the importance of nonclassroom spaces (NCSs). We hope to paint a richer portrait of how students use NCSs and of the way NCSs function within LLCs.

Context for This Study

This study focuses on the Residential College in the Arts and Humanities (RCAH) at Michigan State University. Established in 2007, the RCAH offers the experience of a small liberal arts college within a large public university. Entering cohorts of students have ranged from 90 to 118, resulting in a total student population of around 300.

The RC is a four-year program with its own major. Most courses are taught by full-time, tenure-system faculty. A variety of fields and disciplines are represented on the faculty, including history, ethnomusicology, writing, philosophy, studio art, art history, theater, education, literature, and foreign languages. The interdisciplinary curriculum of the RCAH major emphasizes the “four cornerstones” of world history, art and culture, ethics, and engaged learning. Students explore a wide range of cultural forms, including art, music, theater, and literature. “Creative workshops” allow students to engage in artistic production, including photography, screen printing, music, writing, book arts, new media, and more.

The RC is located within the Snyder-Phillips Residence Hall complex or Sny-Phi (pronounced to rhyme with “sci-fi”). Sny-Phi includes residential spaces for approximately 750 students, approximately 150 of whom are enrolled in the RCAH at any given time. College spaces are located in the center of the complex and include eight classrooms, offices for faculty, staff, and administrators and a variety of NCSs, including the LookOut! Gallery (figure 1), the RCAH Theater (containing 132 seats, a stage, and sound and light capabilities; figure 2), the Art Studio (equipped with large worktables, letter presses, and screen printing equipment; figure 3), and the Language and Media Center (LMC) (equipped with media production resources, such as computers, media production software, cameras, camcorders, printers, etc.; figures 4 and 5). Numerous areas of the College are equipped to display works of art and other cultural artifacts, including glass display cases on the second-floor classroom wing (figure 6), additional display cases in one of the office wings, and special paneling on the third-floor classroom wing that allows push-pin hanging. Spaces for informal gathering are distributed throughout all levels of the College. These gathering spaces take several different forms: rooms with leather couches, clusters of upholstered chairs, and conference rooms with 8-10 chairs around a table (figures 7 and 8). In addition to these College spaces, the Residence Hall complex includes other NCSs, including study lounges, music practice rooms, a large cafeteria, and a coffee shop that doubles as a mini-grocery store.

The RCAH, then, embodies a number of principles introduced in the literature on learning spaces. It contains ample informal learning spaces, including spaces for collaboration, group work, and spontaneous connections. Located in a single residence-hall complex, its spaces are proximate, allowing the seamless and fluid movement from one space (and the kinds of activities it supports) to another. Residential, classroom, and many different kinds of informal NCSs are adjacent to each other. The Internet is available wirelessly throughout all of these spaces, and other kinds of new and old technologies are accessible in select spaces (e.g., letter presses in the Art Studio and media production technologies in the LMC). Spaces are designed to facilitate group work, collaboration, and spontaneous interactions among all members of the RCAH community. Spaces are designed to be comfortable, and many are furnished with soft chairs and couches. The RCAH has attempted to make these spaces aesthetically pleasing, paying attention to the presence of natural light, the coherence of interior design elements, and the inclusion of striking architectural features, such as the curved glass wall of the Gallery. Finally, many spaces throughout the College are designed to serve as venues for presenting creative and intellectual work by students and others.

Participants and Methods

To understand how undergraduates in the RCAH perceive and use their living-learning environment, we used a variety of data-collection methods. We collected cognitive maps from 45 undergraduates in the Residential College by asking for volunteers from four different undergraduate classes. Participants received the following instructions: “On a blank sheet of paper please draw a map of the RCAH living learning environment (by map we mean an illustration or picture). Please sketch and label places that you believe are a part of the constructed environment of the RCAH that you use or interact with as a student in the RCAH. There is no right or wrong way to illustrate this environment so feel free to be creative and generate a visual representation of this location.” These instructions were followed by the prompt: “Where does learning happen?”

Each student map was then coded for the presence of particular locations (figure 9). In addition to the anticipated spaces we documented the unique features listed by students in a category entitled “other.” Such spaces included “Stairwell for playing guitar,” “Outdoors,” “Hallways,” and “The Library.”

In addition to the mapping exercise, we attempted to document the use of space through time by conducting “observational tours” (OTs) — systematic trips through the



Figure 1. RCAH LookOut! Gallery



Figure 2. RCAH Theater



Figure 3. RCAH Art Studio



Figure 4. Language and Media Center

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Figure 5. Language and Media Center Conference Room



Figure 6. Glass Display Cases, Second Floor Hallway



Figure 7. Informal gathering space



Figure 8. Informal gathering space.

complex using an observation protocol to document the use of NCSs. In total, 46 OTs were conducted over a nine-week period by a team of undergraduate research assistants (URAs). Data collected from OTs were coded as evidence of each NCSs function as a social hub, as a performative venue, and/or as resource rich. These uses emerged through discussions among the researchers and the undergraduate research assistants. They represent consensus among the group as to categories which adequately capture recorded observations. OTs recorded two events that each drew more than 100 individuals. Aside from those events, OTs recorded over 236 individuals using NCSs. They recorded 64 instances of students studying individually and 65 instances of social interaction. Fifty-three instances of space functioning as a performative venue were recorded. By "performative venue," we mean any use that has to do with making or experiencing creative work. Individuals made use of over 390 resources either provided by the space or brought there by the individuals themselves.

One-on-one interviews were the third major data collection technique and allowed us to extend and confirm impressions that we had about how the spaces in Sny-Phi

Hall were thought of and used by undergraduates. Interviews were conducted with nine of the students who had drawn maps.

Findings

The three sources of data suggest a number of observations about the role of NCSs in students' experiences. Perhaps the most basic observation about the data we've collected is that NCSs do factor prominently into students' experiences. Asked "Where does learning happen?" many students mention NCSs. As figure 9 shows, 171 instances of NCSs (music practice room, coffee shop, dining hall, offices, the Language and Media Center, the LookOut! Gallery, the dorm rooms, the study rooms, and other spaces) are included in students' maps, for an average of 3.3 mentions per map (and this leaves out the Theater and the Art Studio, which are sometimes used as classrooms and sometimes used during open access hours). Predictably, when asked to visualize where learning happens, classrooms were the single most prevalent space, with 30 mentions. But Study

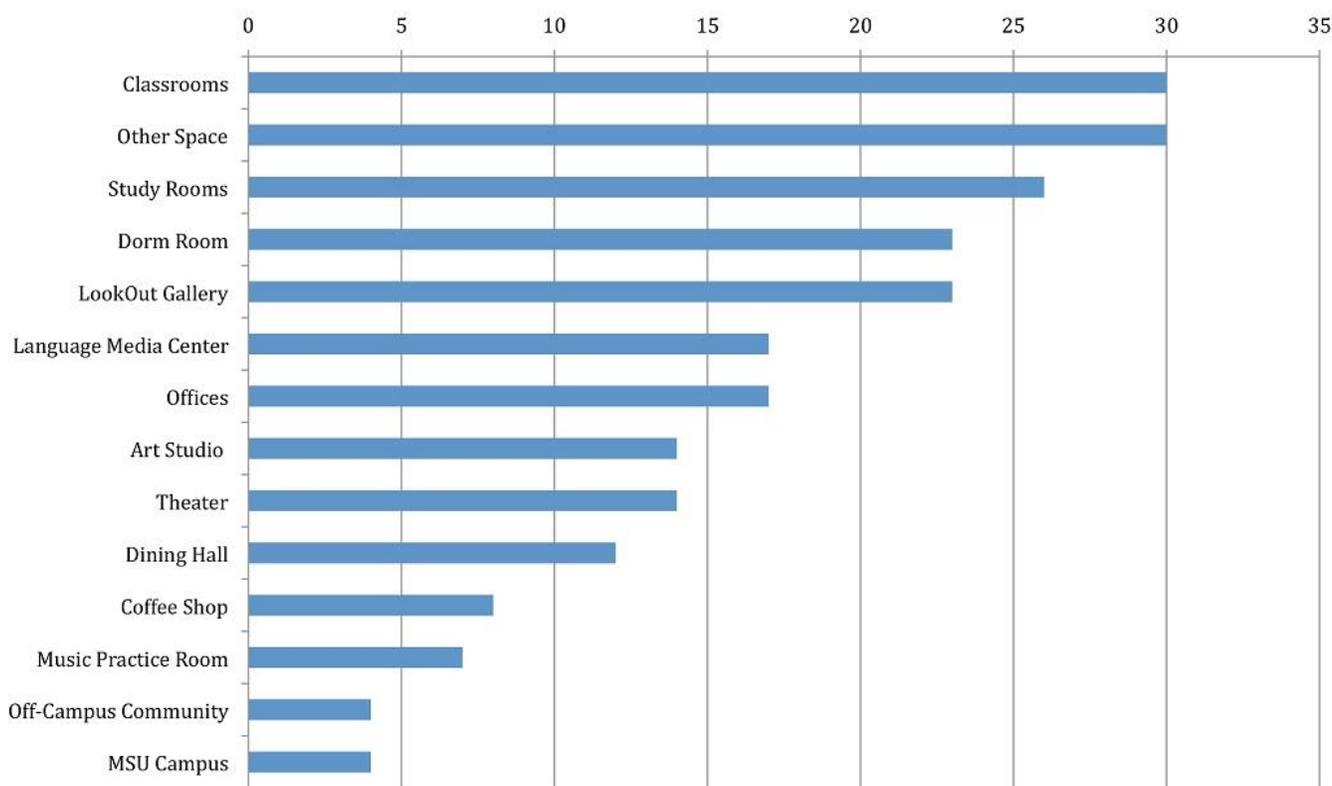


Figure 9. Summary of RCAH spaces referred to in cognitive maps.

Rooms, a specific kind of NCS that is prevalent in the RCAH, are a close second, with 26 mentions.

Based on the visualizations students produced, it appears that for many students learning is not contained within spaces that are traditionally marked as academic. Instead, learning spans classrooms, spaces for eating (Coffee Shop and Dining Hall), other informal spaces (e.g., Study Rooms, the Language and Media Center), and residential spaces (dorm rooms). As one student put it, "Learning – I think it happens all over."

Three functions of NCSs are salient: promoting social interaction, providing access to resources, and providing a venue for the presentation of artistic expression (broadly conceived).

NCSs Provide the Opportunity for Important Social Interaction

Coming in here and seeing ten people that I know are in my graduating class in the RCAH is like, it's like a light – I mean this is like a hub. (RCAH Student)

Research on LCs suggests that their value derives from their ability to foster social connections. The literature on informal learning spaces speculates that spaces can foster social connections. The evidence we gathered in this study indicates that NCSs within an LLC do encourage social interaction, collaboration, and community formation. Overlaid on top of the brick and mortar spaces is a second level of architecture, consisting of social ties, connections, and relationships that are facilitated by the proximity of people in this community. Members of the RCAH community, including both faculty and students, carry out day-to-day activities in an integrated physical environment which is conducive to forming relationships and fostering feelings of closeness.

OT data include 65 instances of social interaction within the NCSs of the RCAH. For example, observations recorded on November 10, 2010 document a variety of social interactions occurring within the RCAH, ranging from simple proximity (students working independently from one another in an NCS), to students working with other students on academic assignments, to students interacting with professors. These observations reveal the

variety of types of social interaction that occur within the College.

Likewise, interview data indicate that social interactions figure prominently in the student experiences. When asked what they most enjoyed about the RCAH experience one student commented: "I most enjoyed the classes and the people, which I'm sure is everyone's answer." Another student stated:

Friends, I guess, are the people that like when I was living here freshman year, the kids that are in my classes, and I think that by living in like close range with them – I dunno, we were just a close community, that's healthy. ...

This student explicitly stated that living proximate to classmates facilitates community. Another student commented: "I drew a line connecting the students to the teachers to the space that just kind of like closes everything together, and that creates a community, and we're all the members of the community that contribute to community, and I think that's one of the most important things that the RCAH emphasizes is community." A third student mentioned that the proximity of faculty offices is an important factor: "being able to walk from classroom to teacher's office in a span of 30 seconds, is brilliant. Because

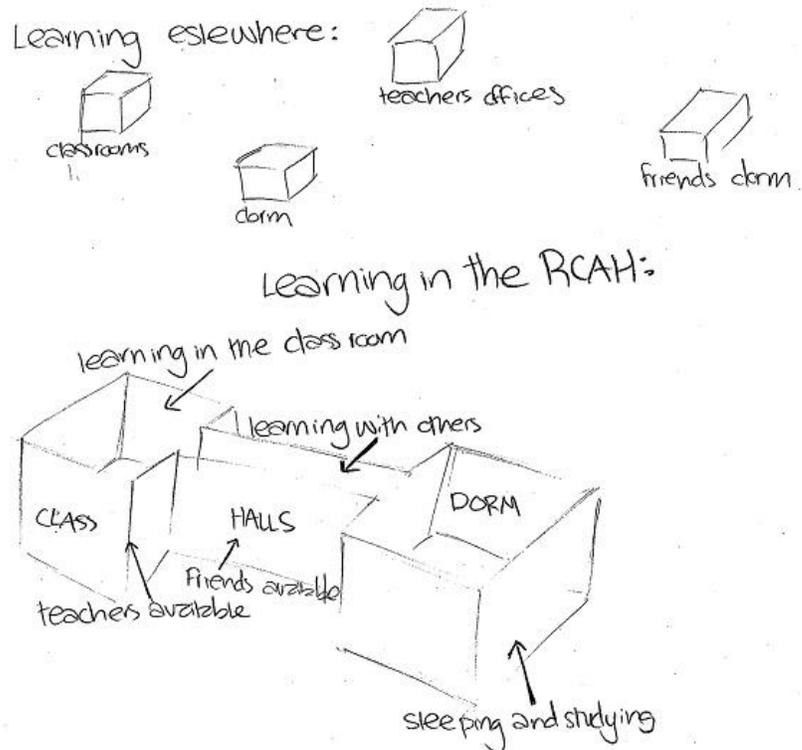


Figure 10. Cognitive map drawn by a student.

when I lived here, I knew if we had just gotten to the class, or if it was a down kind of day and I didn't have that class, and I needed to ask a question I'd go pop my head in." Yet another student joked that some faculty "spend a little too much time here. Like, I have some professors, where I've been in the hall at like 3am or something and one of them's here, and I'm like 'You need to go home . . . and go to bed with your family.'"

Student maps also highlight social relationships and community. For instance, one student drew two diagrams, one representing "Learning elsewhere" and another representing "Learning in the RCAH" (figure 10). The "elsewhere" diagram contains four boxes labeled "classrooms," "teachers offices," "dorm," and "friends dorm" respectively. These boxes are unconnected, separated by white space. The RCAH diagram, in contrast, contains a series of connected spaces: "class" is connected to "dorm" via "halls." The student seems to be suggesting that in her perception the RCAH offers a more integrated experience than the typical college experience. Notably, the component labeled "halls" is not merely a conduit for getting from one place to another. Instead, it is labeled as "learning with others" and "friends available."

To sum up, our data suggest the following: (1) social interaction and community formation are salient characteristics of the student experience in the RCAH; (2) students interact with each other and with faculty; (3) NCSs seem to support social interaction and community formation. These findings suggest that the design of individual spaces and the positioning of a variety of spaces in close proximity to each other contributes to social connectedness, which has been cited as the key benefit of LCs.

NCSs Make Works of Artistic Expression and Intellectual Inquiry Available to the Larger Living-Learning Community

One way that students learn is by seeing the creative and intellectual work of others, including the work of peers, faculty, and guests (such as visiting artists). This work includes visual art (e.g., photographs, paintings); performances (e.g., concerts and plays); writing (e.g., books and 'zines); and visual presentations of research and analysis (e.g., research posters). All of these things are encountered as one navigates through the spaces of the College, and indeed, several spaces and architectural features are designed to facilitate this kind of exhibition. Located in the spatial center of the RCAH, The LookOut! Gallery is used for the formal presentation and performance of creative work. Hallways include glass cases and push-pin panels for displaying student work. Numerous works created by

students and visiting artists are hung permanently throughout the college.

OT data include observations of performances in College spaces, including impromptu "jam sessions" outside of the café on the first floor, students practicing ballroom dancing in the study lounges, and a group of break dancers outside of the theater. Based on records kept by the RCAH, we know that the RCAH Theater hosted twelve different events during the Spring 2010 semester, including plays, musical performances, and poetry readings. The RCAH Gallery hosted nine events or installations, including work by both students and visiting artists.

Interview data supports the claim that NCSs function to facilitate performance and display. One student commented that the RCAH Gallery:

[I]s kind of where I started to — in my RCAH experience — where I started to formulate what I want to do with my time and the space that's given to me, and with the education that my professors are giving to me, and this is when I wrote my first comic was in the RCAH and it was displayed here, which is great.

For this student, the LookOut! Gallery seemed to be the symbolic center of his experience in the RCAH.

Asked about whether student work displayed in the hallways facilitates learning and social interaction, one student responded:

Every day. That happened to me last week. Like, my friend [Name of Student] was in this class and all these posters were put downstairs, and thankfully she's in the next room so I'm like '[Name of Student], what is this, I saw that your name was on this paper?' she was like, she explained what the project was, but, absolutely. I learned from that.

Student work displayed in the NCSs of the RCAH is clearly significant in this interviewee's experience. In this case, the display of student work prompted a conversation between the interviewee and another student, reinforcing social relationships. In this conversation, one student represented coursework to another student (the interviewee) who was not enrolled in the course. All three of the characteristics that Tinto lists as defining LCs — "shared knowledge," "shared knowing," and "shared responsibility" — seem to be embodied in this example (2003:2).

Performance and display spaces featured prominently in the cognitive maps. The LookOut! Gallery was represented in 23 maps (the third most mentioned space after classrooms and study rooms). The RCAH Theater was included in 14 maps. Other NCSs were included for their ability to facilitate

performance and display, including the "stairwell for guitar."

Overall, the data collected in this study paint a portrait of the Snyder-Phillips Complex as a set of spaces that facilitate a vibrant environment characterized by the daily encounter of creative work: photographs, paintings, sculptures, musical performances, poetry readings, plays, dancing, and more. Faculty, visiting artists, community partners, and students all contribute compositions to the learning ecology of the RCAH. This work fosters community, prompts reflection about the nature of the arts and humanities, and facilitates engagement. Student contributions are particularly notable, as such contributions are consonant with Tinto's view that LCs require students to be active participants in the learning process of the community.

NCSs Provide Access to Important Resources

The evidence we gathered during this study suggests that the NCSs of the RCAH are notable for the resources they provide and accommodate. Overall the variety of resources present in the spaces emerged as significant to the way students interact with and use the college setting. According to data collected through OTs, individuals made use of over 390 resources either provided by the space or brought into the space. For example, observations made on November 2, 2010 documented student use of a study room, a hallway, and the art studio. The observation of the study room revealed a student sitting at a table working on his/her laptop and cell phone. A second student was observed also using a study room and with them they had a backpack, jacket, laptop, power cord, phone, water bottle, and folders. Furthermore, observations were made of a student in a hallway sitting on a bench with their backpack and laptop while wearing slippers. Another student was observed using a paper cutter in the Art Studio. These observations demonstrate that NCSs provide furniture and other resources valued by users and that they accommodate additional resources that users provide for themselves.

Interview data also indicate that NCSs are important for the resources they provide. For instance, asked if her use of Residence Hall has changed now that she lives off campus, one student responded:

Not really, I mean this is my senior year, so, yeah I've been using the space to study and to meet groups, and like I said I do create art here because I can't in my apartment.

Similarly, other informants refer to "art supplies," "soundproof rooms and pianos," "comfy couches and comfy chairs," and "projector screens." One student remarked that

the art studio and the Language and Media Center are more suitable for making things than the regular classrooms. Even the classrooms themselves become NCSs after hours. One student reported:

[Y]ou know we've plugged our iPods into the speakers in those classrooms after hours, and worked for you know five hours straight on papers that we had to do together, and were able to do that, you know?, and have a fun working environment.

In this case, the resource-rich nature of the space supported socialization and collaboration and encouraged an affective connection to the "fun working environment."

The architecture and built environment themselves can be seen as resources that are both functional and supportive of a positive day-to-day experience in the College. Informants signal the positive associations they have with the college's space using descriptors like "nice," "fun," "always open." One student explicitly proclaimed her love for the building:

I really love this building, like I'm — I'm in love with north complex. I think they're gorgeous buildings, architecturally outside they're gorgeous, it's like old style, but they're not — y'know they're not like [name of a different residence hall], where it's just like a block of space, y'know and just like filling the blocks of space with students.

Cognitive maps demonstrate that the provision of resources by NCSs is salient in the student experience at the RCAH. Maps frequently include representations of College spaces that provide access to specialized resources. Fourteen maps include the theater (which provides access to a stage, lights, sound equipment, props, and stadium seating); 14 include the art studio (which provides access to paint, printing presses, movable type, and screen printing materials); and 17 include the LMC (which provides access to computers, media equipment, and language resources). That these spaces factor prominently into many students' experiences is indicated by their frequent inclusion in the cognitive maps.

The RCAH Language and Media Center is a particularly clear example of how NCSs provide students access to resources. The mission of the LMC is to support media literacy and production as well as world language and proficiency. To this end, the LMC provides access to computers, software, cameras, foreign-language movies, and other resources. Usage of these resources is tracked by LMC staff. Every hour on the hour, LMC staff take a headcount of how many users are in the LMC and what, if any, applications they are using. During the 2011-12

academic year, for instance, hourly headcounts totaled 4,351 (table 1). LMC staff recorded 1,010 instances in which media production software was used, including 498 instances of desktop-publishing software, 436 instances of video production software, 53 instances of sound and music software, and 23 instances of digital slide software (table 2). Additionally, the LMC loans out media production equipment (e.g., cameras and camcorders) and world language proficiency resources (e.g., foreign language films) to students and faculty who are working on media projects (table 3). The LMC, then, seems to function as a space where students can access a variety of specialized resources that are important to their lives in the RCAH.

Year	Count
2009-10	3,182
2010-11	4,577
2011-12	4,351

Table 1

	2009-10	2010-11	2011-12
Desktop Publishing	530	541	498
Illustrator	109	113	125
Photoshop	366	364	302
InDesign	55	64	71
Video	173	506	436
iMovie	129	70	60
Final Cut Pro	41	422	355
Other Video	3	14	21
Sound and Music	75	122	53
Audacity	9	9	2
Garage Band	63	86	43
Pro Tools	3	9	1
Logic	0	18	7
Web Composing	13	16	0
Digital Slides	21	14	23

Table 2

	Students	Staff	Faculty	Total
Cameras	95	1	3	99
Video Capture	79	0	5	84
Sound Capture	82	3	11	96
Language-related	25	0	9	34

Table 3

Conclusion: "Everything Is Part of the Whole"

Our research indicates that non-classroom spaces fulfill important functions for undergraduate students in LLCs. Student perceptions and use of space highlight it as significant and impactful on their educational experiences. Our findings were separated into three distinct categories for clarity's sake; however, it was most common to observe all three functions occurring simultaneously and mutually constituting one another. And, indeed, several students emphasized the fluid and coherent nature of the RCAH. For instance, one student, in discussing his map, listed a number of spaces, including the "learning and thinking spaces up on the second floor," the Language and Media Center, the practice rooms, and the residential spaces. He then observed,

"And to me, now that I am looking at this it comes back and makes total sense because, I'm kind of in the same state of mind. Everything is like, part of the whole but they're all individual spaces." Later, he commented, "So I guess if there's anything I would change, I would — as far as like the outline of my drawing, I would want to make it more cohesive, because the way I was drawing it then, it seems like the living space is a little more separated, and that was just from a purely architectural standpoint." The student reported that he has a new appreciation of RCAH spaces now

that he lives off campus: "coming back...I still utilize the space entirely, and now it seems like even more of a resource." Another map depicts the varied spaces for learning, including dorm rooms, hallways, classrooms, the LMC, the LookOut! Gallery, and study rooms (figure 11). The map includes the following notation: "Learning occurs in the residence areas, during study, socialization, and non-classroom topics. RCAH halls seem very social, especially the freshman ones."

Indeed, the sense of connectedness and coherence is so pronounced that the RCAH is sometimes referred to as a "bubble." As one student explained:

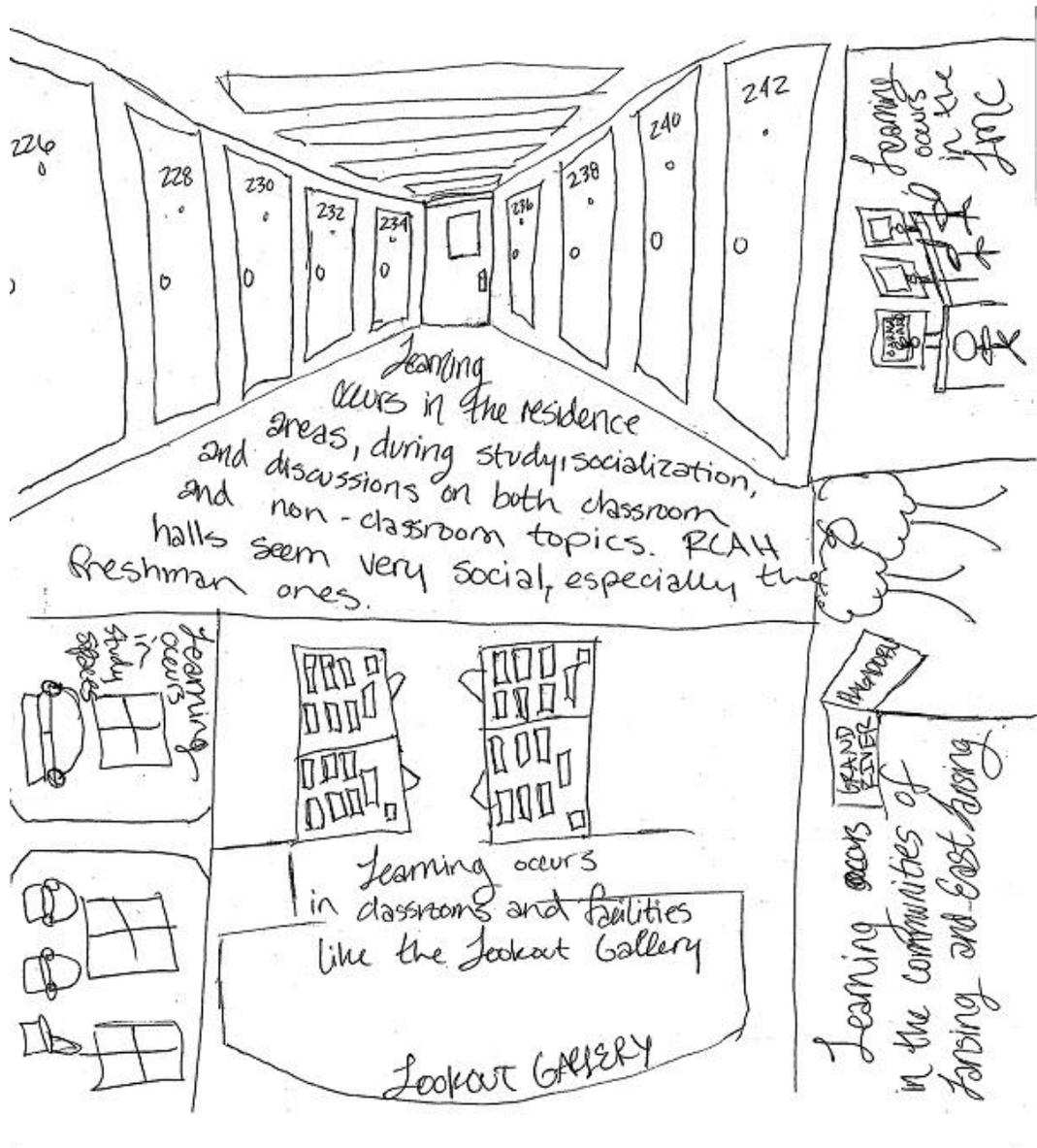


Figure 11. Cognitive map drawn by a student.

Yeah, okay, so all your classes are in the same building; you eat in the same building, you sleep in the same building. What's the point in getting out if everything is here that you need? You have music here, you have an art space, a library, you can get on the internet any time you want to; study space, you don't always have the motivation to get out I guess, and that bubble — and the bubble is also all these kids that you're in class with, and you go out to the same parties with, you eat with them, you have lots of similarities and sometimes it's hard to relate to other majors or other students who aren't getting the same background information. So maybe that's the bubble, it's just like the culmination of knowledge that we're all discussing together and learning from each other.

As the explanation reveals, the environment is meeting many of the student's daily needs. What is powerful is the manner in which the student describes two features of the "bubble." The first is the built environment that is shared among the group, and the second is the web of shared knowledge and relationships built among classmates.

Research on LCs suggests that they provide a range of academic benefits and that these benefits are largely due to LCs' ability to foster social connectedness and community. The data we collected in this study suggests that the inclusion of a variety of NCSs into the design of LCs — and locating these spaces in close proximity to each other and to classrooms — supports the goal of social connectedness and community formation. Our study confirms that informal learning spaces are a worthwhile investment.

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