

ABSTRACT

GIERDOWSKI, DANA COCKRUM. Geographies of a Writing Space: The Study of a Flexible Composition Classroom. (Under the direction of Dr. Susan Miller-Cochran).

Empirical research on the impact of innovative learning spaces in higher education has been ongoing in the areas of Science, Technology, Engineering, and Math (STEM) and Library Sciences; however, there is a dearth of research in the Humanities in the area of Composition Studies. This ethnographic study examined the role that a “flexible” classroom design played in a first-year writing course at a large southeastern university. The flexible room included mobile furnishings, mobile whiteboards, and multiple LCD screens for display and is a space where students used their own laptop computers. The goal of the flexible design was to give instructors more flexibility with their pedagogy and engage students more in the writing process. Participants in this study included an instructor, teaching assistant, and students in one section of the university’s first-year writing course for one semester, and the research questions focused specifically on how the participants both used and perceived the flexible classroom. Data was collected via classroom observations and personal interviews. Students were also asked to complete conceptual mapping exercises, which were designed to obtain more information about their preferences for certain seating or geographic areas as they pertained to composition-specific activities such as collaborative writing and peer review. The data suggest that the flexible space was used for a variety of pedagogical activities and was perceived by the instructor as being particularly supportive of active, collaborative learning. Student perceptions of the space were largely positive, as they reported that the flexibility of the space allowed them more control over their environment.

and increased interaction with their peers and their instructor. The participants reported that at times the classroom felt disorganized, which contributed to the perceptions that the space could be an obstacle to teaching or a hindrance to learning; however, the instructor, teaching assistant, and the students noted that this disorganization was negligible when compared to the overall benefits of being in the flexible space. The results suggest that a flexible design is a potential aid for addressing varying social dynamics in the classroom, can support students who learn differently, and offers opportunities to connect with students who lack confidence as writers. The study also indicates that a flexible environment can promote reflective teaching practices, which underscores the conclusion that space, pedagogy, and social dynamics must be considered together when assessing the role of a learning space.

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Geographies of a Writing Space: The Study of a Flexible Composition Classroom

by

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DEDICATION

To Mike

I am – and will forever be – the luckiest

BIOGRAPHY

Dana C. Gierdowski is a scholar with research interests in writing studies, learning spaces, and pedagogy. Her work explores how innovative, technology-rich learning spaces impact student writers and instructors. Dana's research interests stem from her twelve-plus years of experience as an instructor of writing in both high school and higher education. Before coming to North Carolina State University, she obtained her Master's Degree in Professional Writing at the University of Massachusetts at Dartmouth (2005) and her Bachelor's Degree in English from Berry College (1995). As part of her doctoral work at North Carolina State University, she has done research on higher education learning spaces such as writing centers, multiliteracy centers, and learning commons spaces in libraries, and has been involved in projects related to professional development for faculty. In addition, she managed the First-Year Writing Program's "flexible" classroom project, which involved classroom redesign and mixed methods research. She has authored the book chapter "Studying Learning Spaces: A Review of Selected Empirical Studies" in the edited collection *Cases on Higher Education Spaces* (IGI Global) and is co-author with Susan Miller-Cochran of the article "Making Peace with the Rising Costs of Writing Technologies: Flexible Classroom Design as a Sustainable Solution" in the March 2013 special issue of *Computers and Composition*.

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CHAPTER 1: INTRODUCTION AND REVIEW OF LITERATURE

Room 12 in Winston Hall was in the basement: a narrow, windowless classroom with dim fluorescent lighting and cramped rows of creaking, oak tablet-arm chairs. I was a first-year writing instructor new to this college, and as I stood in the doorway of Winston 12, I took a mental inventory of other classrooms I had taught in over the years at different institutions. There was the room that was equipped with a 1970s-era overhead projector and heavy, immovable floor-to-ceiling drapes that covered all the windows, blocking any exposure to natural light; the u-shaped computer lab where students faced the walls instead of each other; another lab, this time with computers in rows, where the height of the monitors prevented most students from effectively seeing the front of the classroom and allowed me only a glimpse of the tops of their heads. At another institution my classes met in a bright room with an instructor's computer and a document camera; however, the long, narrow tables in the space were arranged in tight, graduated rows from low to high, which limited our mobility and the contact we had with each other. Then there was the room on one campus in the performing arts building. Here we had plenty of space to move the tablet-arm chairs into different configurations for peer review and other group activities, and the room was outfitted with a new document camera; however, on some of our class days, my students and I had to raise our voices over the tribal percussion class that practiced across the hall. Tribal drumming, I learned, can be infectious and spirited – a force that has the ability to rouse students from their walking sleep during 8am classes. I also learned, however, that it is not an appropriate backdrop for productive peer workshops and class discussions.

As I stood in the doorway considering the shortcomings of the classrooms in my years of teaching, Winston 12 seemed like a significant downgrade. According to university records, the space seated 30 students, which felt like an enormous number given the small square footage of the room. In order to accommodate 30 seats, the heavy, tablet-arm chairs were arranged end-to-end in cramped rows from the front of the room to the back wall. Our first-year writing classes were capped at 22 seats, and even with this smaller class size the room was still restrictive, as we struggled to maneuver around extra seating in a room that was already compact. No space was available around the periphery of the room or between the desks, and the aisles were so tight that my students had to file in movie theater-style, bumping into each other and stepping on backpacks and other personal effects. My students and I resorted to unpacking the room of any unused desks and lining them up in the hallway so that we would have more room to move the seats into clusters for our peer workshops and other collaborative assignments.

The room had two chalkboards, one at the classroom front, and one that ran the length of one of the long walls. Having two chalkboards seemed like a good idea, but my access to the larger board on the side of the room was cut off due to the student desks, and the smaller board at the front of the room was completely blocked when the projection screen was in use. For the first semester I taught in this space, the only technology that was included in the room was an overhead projector and screen. If I needed a computer or DVD player, I could check out “the cart” – a mammoth electronic office on wheels, that had to be wheeled from the IT office, which was in an adjoining building one floor up. Transporting the cart to the basement room was a challenge, as it steered like a boat with no rudder. Returning the cart

after my class was a sweat-inducing workout, as I pushed it as fast and as safely as possible back to the office so it could be used by other instructors. While I appreciated having access to this equipment, I found that much of my lesson planning had to be done well in advance to account for the days I would check out the technology cart (which required a reservation); as a result, this advanced planning requirement began to supersede the organic pace of the class and the needs of my students. Modifying my lessons on the fly to accommodate the more immediate needs of the class and address questions I had not anticipated was often difficult without access to a networked computer, where texts such as online articles, websites, and videos have become a critical resource for my own pedagogy. Having consistent access to a networked computer helps me relate mainstream online media to academic rhetorical situations to students, and as a result, those teachable moments increase.

While I still asked students to work in groups to do peer review with their classmates on draft papers, I found myself assigning fewer active learning, group activities (i.e. responding to readings, brainstorming topics, doing collaborative writing exercises, and the like) while teaching in this room, as rearranging such a tight space was cumbersome and time-consuming (particularly when unloading the room of empty desks). To make grouping up more efficient, I would often just have students work with those they were sitting next to without physically moving their seats. While this approach worked to an extent, it did not seem to facilitate as much discussion between group members as compared to when the students could move to sit in circle configurations facing each other. In addition, students frequently worked with the same individuals and did not get the benefit of other points of view from students who sat in other parts of the room.

To my delight, the following semester “the cart” was permanently installed in room 12, which gave me daily access to a networked, laptop computer, DVD and VHS player, and document camera, which increased the flexibility I had in designing class activities and lessons. Yet the narrow space of the room and the height of the equipment on the cart made it difficult for students to see the front projector and chalkboard, and also obscured my view of them. Even having access to the digital technologies that I found so critical to my own teaching could not overshadow the cramped, dim quarters. I daydreamed of a classroom that would combine access to digital technology with more square footage and better sightlines, one that would give me greater flexibility to incorporate more active learning and group activities into my teaching, and would facilitate more collaboration and engagement with my students - one that would encourage a community within the space itself.

As an instructor new to the university, I quickly learned that room 12 was infamous – the classroom pariah in our program. When learning of my room assignment, other instructors would offer me a commiserate nod of the head and share their own stories of teaching in the space. While the assignments and lessons would often differ from my own, the challenges the instructors expressed were similar; that is, the space itself was restrictive and got in the way of pedagogical variety. The room did accommodate lecturing to an extent (although due to the obscured sightlines at the front of the room and a projection screen and chalkboard that took up the same space, even lecturing was affected). Being situated in room 12 made me even more aware of my own theoretical beliefs about the teaching and learning of writing; that is, engaging students in the writing process through active, collaborative learning was what I found most successful for them. However, the instructor who wanted to

do different kinds of activities involving various furniture configurations, de-center the classroom by getting out into the space among students, or switch gears to adapt to the needs of the class, frequently struggled against the space itself. Our experiences seemed to align with the ideas of learning space scholar Peter Jamieson (2008), who noted:

in order to adopt alternative practices, teachers and students have to overcome the original design intentions that underpin the classroom setting. In doing this, the experience and the outcome may be compromised as a result, possibly reducing the likelihood of further attempts to work in new ways and improve the student learning experience (p. 23).

When our department put out the call for volunteers to teach in a pilot networked room designed for students who owned their own laptop computers, I volunteered without hesitation just to avoid being assigned to room 12 the next year. The pilot room was much larger, equipped with an instructor's lectern (which included a computer, projector, DVD player, and document camera), and had newer furniture arranged into pod configurations for group seating. The pods, each seating six students, provided ample space for student computers and included electrical outlets for students' laptops (Figures 1.1-1.3).

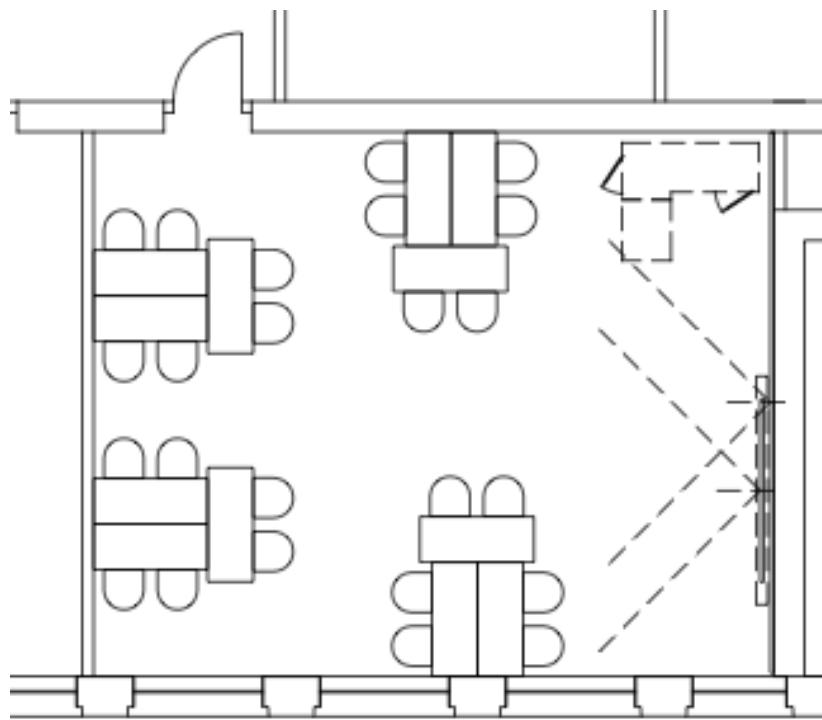


Figure 1.1: Floor plan for the pilot “bring-your-own-laptop” room.



Figure 1.2: Pilot BYOL classroom, view of classroom front.



Figure 1.3: Pilot BYOL classroom, view of back.

Having access to this technology on a daily basis, combined with students bringing their own computers, gave our class greater flexibility and freedom. Students were able to access research databases and digital texts as the need would arise, share their work electronically, and move about the space with ease, laptops in tow.

While a new level of flexibility had been achieved for both students and instructors with the addition of multiple kinds of digital technology, we were still limited to some extent by the fixed nature of the pods. The tables in the space (three tables constituted one pod) were tethered to each other to accommodate the desktop electrical outlets provided at each pod. This tethering prevented us from moving the furniture (other than the chairs) into configurations that would best support different kinds of class activities. The immobility of

the tables also forced some students to sit with their backs to the front of the classroom or to other students who sat at different pods. My teaching experiences in this room were a vast improvement over those I had in room 12 or any other room I had taught in for that matter.

Conversations with other instructors who also taught in this classroom revealed that they, too, felt a sense of freedom due to the resources in the room, which demonstrated that we were even closer to a workable solution to less-than-ideal classrooms in our program.

Consistent access to digital technologies for ourselves and for our students was a large piece of the puzzle; yet some instructors believed that more flexibility with the material affordances in the classroom itself would further enhance the space – more specifically, we wanted furniture that was not tied down and was easy to move. Such flexibility would allow instructors to configure the space to support a variety of activities from whole class to small groups. Due to varying pedagogical styles, no one space can meet the individual needs of every instructor or student. As Jamieson (2008) pointed out, “One-size does not fit all when it comes to creating authentic and appropriate environments for particular learners in specific contexts” (p. 23). However, after talking with other teachers and reflecting on my own experiences, I kept coming back to the same question: Would a classroom with movable furniture allow instructors to customize the layout to suit an active learning pedagogy and engage students more in the writing process?

My experiences in a multitude of classrooms, and particularly in room 12 and the pilot laptop room, made me realize how profoundly affected I am by the learning spaces in which I teach. The location, square footage, furnishings, and technology (or lack thereof) had an influence on the decisions I made as an instructor, as well as how engaged and

participatory my students were in their own learning. My own ideological notions about teaching writing – that I taught a process and not a product (Murray, 2003) – shaped the way I chose to use a space; if it did not easily accommodate group work and active learning, I would do my best to “hack” the space (Walls, Schopieray, & DeVoss, 2009) to make it work. As I recognized the impact of learning spaces on my own pedagogy, practice, and psyche, I also started to think more critically about how students felt about the campus spaces where writing and writing instruction occurred.

Scholars in Rhetoric and Composition have noted the importance of place as it relates to the work students do as writers. In our discussions of these learning environments, the actual places in which we teach and learn are often neglected as a focus (Walls et al., 2009) and devalued in higher education (Nagelhout & Blalock, 2004). The design of learning spaces “often takes a back seat to budgetary concerns, institutional politics, and physical constraints” (Carpenter, Valley, Napier, & Apostel, 2013, p. 316). Nedra Reynolds (1998) reminded us, however, that we should not ignore the physicality and materiality of learning spaces. She argued, “Place does matter; surroundings do have an effect on learning or attitudes towards learning, and material spaces have a political edge” (p. 13); as such, places are critical to the learning process as it relates to writing (2004). Similarly, Weisser and Dobrin (2001) wrote, “writing is an activity in and of the world” (p. 146), and that it is critical that we turn our attention to all the environments where “discourse is taught, studied, and lived” (p. 10). With the popularization and ubiquitous use of mobile technologies in the twenty-first century, learning space planners and researchers have argued that any space in higher education is potentially a space for learning (Brown, 2005; Chism, 2006; Gee, 2006).

As a result of their engagement with technology and a need to feel connected (Brown, 2005), the twenty-first century learner's conception of a learning space is evolving to include any space where she might connect to a network (Hochman & Palmquist, 2009). While learning has the potential to happen anywhere on campus, we must not ignore the physical design of learning spaces as a result of our ability to connect any time and anywhere. Fleming (2008) pointed out that we are "embodied" physical creatures who are "situated and sensitive to proximity" (p. 15). He explained that new technologies have made place even more important in our daily lives, as we seek out physical connections to others that are best achieved in a situated location. In other words, place matters.

The design of learning spaces on higher education campuses has received increased attention in recent years, particularly in the design of libraries and STEM classrooms (Beichner et al., 1999; Dori & Belcher, 2005; Foster & Gibbons, 2007; Gaffney, Housley-Gaffney, & Beichner, 2010; Nixon, Tompkins, & Lackie, 2008). However, little research exists on how the design of learning spaces influences student writers, particularly students in first-year writing classes. In most colleges and universities, introductory composition courses are compulsory, which means that most students will take a writing course during the first year. Instructors teaching these courses have access to incoming students in numbers that teachers in many other disciplines do not; as a result, we have the opportunity to help students build a foundation for their writing and to orient them to the rhetorical situations they are likely to face in future classes and professions. Given that our pedagogy in composition studies is largely based on a process model (Murray, 2003) with an emphasis on active, collaborative learning through peer review, it is imperative that we join the

conversation taking place in other fields and disciplines on how the design of learning spaces impacts student writers, as well as the pedagogy of writing instructors. If we ascribe to scholars' assertions that environments are critical to the learning processes of writing (Reynolds, 1998, 2004; Weisser & Dobrin, 2001), we must pay attention to researching learning spaces so that we might better understand what learning looks like in those spaces. Research and assessment of learning spaces for Rhetoric and Composition has been neglected, as there is a dearth of empirical studies in this area. With this in mind, the logical place to start is the space of the composition classroom itself.

To answer the call for more attention to learning spaces, this dissertation presents the findings from a semester-long study of a “flexible” composition classroom, which was designed to allow instructors more physical and pedagogical flexibility and engage students more in the writing process. In this space, students brought their own laptop computers to a classroom that was outfitted with mobile furnishings, mobile whiteboards, and multiple LCD screens.

Review of Literature

Due to the multidisciplinary/interdisciplinary nature of the subject of learning spaces, I draw from several disciplines to inform the basis and direction of this dissertation. This review of literature gives an overview of the contemporary learning theories and pedagogical approaches that suggest a shift in the way learning spaces in higher education are being designed. Place studies in Composition and Rhetoric as well as Human Geography are also outlined, as is the emerging field of Learning Space studies.

Learning Theory

When the term *learning space* is mentioned in the context of higher education, common images may be called to mind of the traditional classroom or lecture hall. In these spaces, seats with tablet-arm desks are often neatly aligned (perhaps even bolted to the floor), a chalkboard or whiteboard hangs at the front of the room, and the instructor is situated before the students as the veritable “sage on the stage” (Papert, 1994). In his book *The Children’s Machine*, computer scientist and educator Seymour Papert (1994) presented a thought experiment that pointed to the outdated design of schools, and by extension, education in the U.S. He asks us to imagine two groups of people – surgeons and teachers – who travel through time from a hundred years ago to witness the changes in the professions. The surgeons would be “bewildered” by the advancements made in their field and would likely not recognize the tools being used and the procedures being performed on a patient. The teachers, he wrote:

would respond very differently to a modern elementary school classroom. They might be puzzled by a few strange objects. They might notice that some standard techniques had changed - and would likely disagree among themselves about whether the changes they saw were for the better or the worse - but they would fully see the point of most of what was being attempted and could quite easily take over the class. (pp. 1-2)

While Papert’s example reflects an elementary school classroom, the same can be said for many classrooms on higher education campuses across the globe. The visual layout of these

traditional spaces speaks to objectivist pedagogical models that position the instructor, and by extension the institute itself, in an all-knowing position of power, and the students as empty vessels waiting to be filled. However, in recent years, the concept of a learning space in higher education is starting to evolve with paradigm shifts that are happening in both economies and pedagogies.

Changes in our economy and the values associated with those changes have been reflected in educational models and their associated spaces for many years. As we moved out of the Agrarian Age and into the Industrial Revolution, the focus of the economy went from farms to factories, where the valued skills were those that involved organizing and overseeing workers in mass production settings. With the growth of urbanization, advances in transportation, and an explosion in immigration, education reformers sought to systematize schools and looked to American industry as an ideal. Rury (2012) wrote that manufacturing was considered:

a marvel of rationality, efficacy, and speed. Workers were required to conform to the demands of production, to be prompt, to follow orders, and occasionally solve problems encountered on the factory floor. In other words, they needed self-discipline and attentiveness, and deference to authority. Such expectations appealed to the Protestant values of early school reformers. They sought a similar goal for children, claiming outright in many instances that the school's duty was to prepare students for the demands of the emerging industrial order. Even as some factories pulled children

away from schools, many educators emulated the industrial system as a model for their new organization. (p. 79)

For the age, the necessary literacy skills were reading, writing, and calculating, and “knowing” was associated with recall and repetition (Brown, 2005). As a result, the educational model matched this economy (Cornell, 2002) with a pattern of “assembly-line learning”; that is, the one-room school house design of the Agrarian era was expanded and repeated with individual classrooms under one roof. The presentation of material was hierarchical – passed down from teacher to students – and the building and room design emphasized efficiency and linear movement, where students migrated from one room to the next to be filled with knowledge (Scott-Webber, 2004, p.31). Thomas and Brown (2011) described this “mechanistic” approach to learning “as a series of steps to be mastered, as if students were being taught how to operate a machine or even in some cases, as if students themselves were being programmed to accomplish tasks” (p. 35). Nair (2011) characterized lecture-style, row-and-column classrooms as “relic[s]...left over from the Industrial Revolution,” which are “based on the erroneous assumption that efficient delivery of content is the same as effective learning” (para. 4-5).

With the advancement of technology, particularly the computer and the Internet, we have moved from an industrial to a knowledge economy, as many factory processes that once required human operators have been automated and communication networks now span the globe. Today, the creation and sharing of knowledge is the force that drives the economy (Cornell, 2002; Scott-Webber, 2004), which is a significant factor that has influenced the paradigm shift in education. The one-way transmission of knowledge (the “sage on the

stage") model that worked during the Agrarian and Industrial ages has been challenged by research in recent years that sheds light on the social nature of learning, particularly constructivist theory, which rejects the idea that learning involves the direct transmission of information to a passive recipient. On the contrary, learning is active, contextual, and social, and learners bring varying levels of knowledge and prior experience with them into educational settings (Brown, 2005; Chism, 2006). King (1993) explained that constructivist learning theory ascribes to the idea that:

knowledge does not come packaged in books, or journals, or computer disks (or professors' and students' heads) to be transmitted intact from one to another. Those vessels contain information, not knowledge. Rather, knowledge is a state of understanding and can only exist in the mind of the individual knower; as such, knowledge must be constructed – or reconstructed – by each individual knower through the process of trying to make sense of new information in terms of what the individual already knows...When students are engaged in actively processing information by reconstructing that information in such new and personally meaningful ways, they are far more likely to remember it and apply it in new situations. (p. 30)

Thomas and Brown (2011) argued that before twenty-first century technologies and communication networks, knowledge was considered static. The design of learning spaces was based on the idea that learning happened in only a few ways, and classroom configurations reflected the need to house large classes at a minimal cost (Chism, 2006).

However, this is not the case today, as technological advancements demonstrate that knowledge is in a constant state of flux, and learning can happen any time, anywhere (Brown, 2005; Chism, 2006).

Experiential or “active learning” is a key component to constructivist theory, which emphasizes the importance of active engagement and that interaction is necessary for learning to take place (Bonwell & Eison, 1991; Dewey, 1938; Kolb & Fry, 1975). Bonwell and Eison (1991) wrote that active learning is characterized by students doing more than just listening to information; in an active learning environment, students are writing, discussing, practicing higher-order thinking, and they are encouraged to examine their own ideas and attitudes. In short, active learning is anything that “involves students in doing things and thinking about the things they are doing” (p.2).

Social constructivists in Composition Studies believe “individual writers compose not in isolation but as members of communities whose discursive practices constrain the ways they structure meaning” (Nystrand, Greene, & Wiemelt, 1993, p. 289). The primary tenet behind this learning theory is that social interaction and participation, particularly with instructors, peers, and other members of the knowledge community, have a significant impact on learning (Chism, 2006; Lave & Wenger, 1991; Wenger, 1998). A number of scholars (Beichner et al., 2007; Bruffee, 1998; Panitz, 1999) have noted the importance of peer interaction and collaborative learning in higher education. Lave (1991) asserted, “learning, thinking, and knowing are relations among people engaged in activity *in, with, and arising from the socially and culturally structured world*” (p. 67, emphasis in original). Panitz (1999) also emphasized the importance of collaborative learning:

[Collaborative Learning] promotes mastery while passive acceptance of information from an outside expert often promotes a sense of helplessness and reliance on others to grasp concepts. In a typical college classroom that emphasizes lecturing there is little time for reflection and discussion of students' errors or misconceptions. In the CL paradigm, students are continuously discussing, debating and clarifying their understanding of concepts. (p. 60)

Thomas and Brown (2012) have taken this concept further, asserting that a new learning culture has emerged based on the idea that transmission learning theory is incapable of keeping up with an ever-changing world; that peer-to-peer learning is more innate due to our access to new forms of media; and that “peer-to-peer learning is amplified by emerging technologies that shape the *collective* nature of participation with those new media” (p. 50, emphasis in original). Similarly, Brown (2005) argued that students of the “Net Generation” have a “symbiotic” relationship with information technology – they are social, connected, and mobile. Information technology has also become a liberator of sorts for teachers, as it “is allowing instructors to finally remove the yoke of expository lecture, freeing them to work with students in more intellectually challenging ways” (Graetz & Goliber, 2002, p. 20).

Scholars in Rhetoric and Composition have long addressed the active and social nature of learning as it relates to the teaching of writing (Britton, Burgess, Martin, McLeod, & Rosen, 1975; Bruffee, 1998; Cooper & Holzman, 1989; Harris, 1992; Howard, 2001; LeFevre, 1987; Lindemann, 2001). For example, LeFevre (1987) pointed out that the collective and collaborative models of invention (or prewriting) all account for an “other” in the invention or prewriting phase. In her explanation of LeFevre, Lindemann (2001) wrote

that in collaborative invention, writers “negotiate a text in conversation with others...who may suggest ideas, who respond to what we are thinking and writing, and without whom composing cannot move forward” (p. 24). Writing, then, “is not merely a process of networking ideas or of bringing an isolated writer together with isolated readers. Writing is a way of living in social groups, of interacting with others and having them interact with us” (p. 32-33). In order to facilitate writer and reader interactions, small-group peer review has become standard practice in many composition classrooms. This student-centered method shifts the instructor’s role from that of lecturer to “enabler” (Lindemann, 2001). Similarly, Bruffee (1998) advocated collaborative learning in writing classrooms through writing workshops. Drawing on Kuhn and Vygotsky, Bruffee asserted that cognitive development is a social, interactive process, developed through community; learning to write is about having conversations, and these are best facilitated in small, collaborative groups. Flower, Wallace, Norris and Burnett (1994) discussed peer interactions in composition classrooms in similar terms, as students make their thoughts “visible” through discussions with their peers about the choices they make in their own writing processes. Writing workshops and peer review support the process theory of Murray (2003), who argued that writing should be taught as a process of discovery, exploration, and evaluation, where students are free to experience the process on their own terms. Handa (1993) would likely agree with Bruffee, as she noted that the hierarchical transmission method of teaching contains at its core the position that students should be left out as “participants in their own education” versus being included. Drawing on Barker and Kemp, Handa wrote, “By being made receptacles of knowledge and not actively engaged in its construction, students taught in this kind of narrowly focused writing

classroom have the power of their written expression neutralized” (p. 106). Similarly, Murray (2003) bluntly argued that we motivate a student to go through an active writing process time and again:

First by shutting up. When you are talking he isn’t writing. And you don’t learn a process by talking about it, but by doing it. Next by placing the opportunity for discovery in your student’s hands. When you give him an assignment you tell him what to say and how to say it, and thereby cheat your student of the opportunity to learn the process of discovery we call writing...We have to be quiet, to listen, to respond. We are not the initiator or the motivator; we are the reader, the recipient...We are coaches, encouragers, developers, creators of environments in which our students can experience the writing process for themselves. (p. 5)

Adopting active learning and collaborative approaches into one’s writing pedagogy gives students the opportunity to construct their own learning.

To put social learning in a broader intellectual context within Composition Studies, it is helpful to discuss the historical shifts in the field. In formalist theory, which Nystrand et al. (1993) identified as being popular from the 1940s to the 1960s, language was thought of as being “composed of objective elements” and “organized into fixed systems” (278). With the emergence of constructivism and social constructivism in the 1960s, writing came to be considered as a social act (Shaughnessy, 1979). Nystrand et al. (1993) identified Bakhtin’s dialogical principle as a school of thought that has emerged in recent years that has had a significant influence on the research and teaching of writing. They explained that for

Bakhtin, “communication takes shape and utterances gain meaning only dynamically through the interaction of conversants” (p. 296); in other words, meaning is constructed through the dialogue and “interaction between users” (p. 300).

The theories discussed above are reflective of and communicated through classroom design. In her book *In Sync: Environmental Behavior Research and the Design of Learning Spaces*, Lennie Scott-Webber (2004) made the point that “Understanding how knowledge is created facilitates our ability to determine behaviors and how to design for intended behaviors” (p. 35). It stands to reason that if students are situated in a classroom where they are given the freedom to construct their own knowledge, work collaboratively, and explore their own ideas and attitudes, then the physical environment should support and encourage these pedagogies. However, many of the learning spaces in higher education do not reflect new learning paradigms and cultures. For example, Bruffee (1998) contended that there are ideal requirements for the design of a collaborative writing space, “none of which include characteristics of a lecture hall” (p. 260). This point demonstrates Monahan’s (2002) concept of a space’s “built pedagogy.” Drawing on literature in educational architecture, Monahan explained that the architectural elements of learning spaces can be read for the types of pedagogies they encourage. He wrote, “A classroom with neat rows of desks embodies pedagogies or ‘tacit curricula’ of discipline and conformity, whereas spaces personifying the flexible properties...can be said to embody pedagogies of freedom and self discovery.”¹

¹ Monahan’s flexible properties of space include fluidity, versatility, convertibility, scalability, and modifiability.

("Built Pedagogy" section, n.p.). In other words, the space itself embodies a particular kind of educational theory or philosophy that ranges between discipline and autonomy:

On the disciplinary side, [spaces] can restrict learning possibilities by not allowing for certain movements of flows. For example, desks bolted to the ground make flexible interpretations of spatial use extremely difficult, and they impose directions for how space should be used. In the middle of the discipline/autonomy spectrum, there are built pedagogies that enable but do not require flexible behaviors: movable partitions and desks illustrate space left open to interpretive use. Finally, on the autonomy end, open classrooms invite and almost demand that individuals appropriate space to their perceived needs. ("Built Pedagogy" section, n.p.)

The concept of built pedagogy and its continuum is also discussed in the literature of educational architecture and design (although it is not called "built pedagogy"). For example, Scott-Webber (2004) classified the design of educational spaces by archetypes based on desired or intended behaviors, such as Environments for Delivering Knowledge (EDK), Environments for Applying Knowledge (EAK) and Environments for Creating Knowledge (ECK).² As Chism (2006) noted, a classroom with chairs in rows that face the instructor communicates a transmission pedagogy. This aligns with Scott-Webber's archetype of EDK, which states that knowledge comes from only one source; therefore, the design of the space is such that the audience's attention is directed towards the classroom front. On the other hand, Environments for Creating Knowledge (ECK) must support

² Additional archetypes include Environments for Communicating Knowledge (ECmK) and Environments where Knowledge is used for Decision making (EDM).

students' creative processes, where they go through "messy," iterative stages where the result is "an innovation" (Scott-Webber, 2004, p.58). She argued that these creative spaces must be more fluid and adaptable, allowing individuals to have more control over the physical setting itself. These spaces are frequently characterized by adaptable furnishings that can accommodate individual (reflection) areas, as well as collaborative spots. Resources in the space (such as digital technologies, white boards, and flipcharts) allow for spontaneous movement and action to help generate creative and critical thinking. The behavioral goal in an ECK is to encourage learners to go through the steps between "knowledge and abstract reality; from an idea to a product" (p. 59), which sounds very much like the process pedagogy that is practiced and encouraged in the teaching of writing. That is, we ask students to engage in conversations in class, brainstorm and refine their ideas, share their writing about those ideas with others, and revise their work based on peer responses; this iterative process typically results in an original, polished (we hope) piece of writing.

Place Studies in Composition Studies & Human Geography

The scholarly conversations in Composition Studies regarding learning spaces have largely been involved in the discussion of metaphor, as well as the pedagogical approaches that are useful in a variety of learning environments. Scholars in the field have suggested approaches that encourage us to be more mindful of place and space, including a re-conceptualization of spatial metaphors to better understand student writers (Reynolds, 1998, 2004), as well as pedagogical practices that afford students greater freedom to explore their identities through the influence of place on their own lives (Ball, 2004; Benson, 2010; Burns,

2009; Gruenewald, 2003; Lauer, 2009; Mauk, 2006; Shepley, 2009). In “Hacking Spaces: Place as Interface,” Walls, Schopieray, and DeVoss (2009) wrote that scholars in computers and writing have focused on issues of space related to software, access, virtual space, and physical design. However, they argued, “Physical space is perhaps one of the most important, yet often overlooked, issues of interface that we negotiate as writers, researchers, and teachers” (2009, p. 273). Inspired by the point made by Wysocki and Jasken that “the design of software is thus also the design of users” they asserted, “the design of spaces is thus also the design of users – and, importantly, also the design of the *uses* of particular spaces” (p. 273, emphasis in original).

Fleming (2008) noted that as physical beings, we are “inherently embodied,” situated, and sensitive to proximity – we are not independent of place. In her discussion of the open admission policies of the 1970s in higher education, Shaughnessy (1979), recognized the importance of students’ previous experiences when she argued that college can threaten to “assimilate [students] into the culture of academia without acknowledging their experience as outsiders” (p. 292). While she did not reference specific places, she drew attention to the reality that students enter the university at differing levels of preparedness, and much of this preparedness is determined by the environments they have already experienced. These previous experiences are influenced significantly by the places from which students come, particularly past learning environments. In *Natural Discourse*, Weisser and Dobrin (2001) point directly to the theoretical importance of environment in Composition Studies and argued, “Discourse does not begin in the self, as some expressivist theories and pedagogies have erroneously suggested; rather, writing begins externally in location. Writers write by

situating themselves, by locating themselves in a particular space/context” (p. 8). Similarly, Nedra Reynolds (2004) wrote that we should not ignore the physicality and materiality of learning environments, asserting that “*places* are hugely important to learning processes and to acts of writing because the kinds of spaces we occupy determine, to some extent, the kinds of work we can do or the types of artifacts we can create” (emphasis added, p. 157). Reynolds (1998) pointed out that the territorial metaphors (such as frontier, city, and cyberspace) that have been historically associated with Rhetoric and Composition are imagined and, as a result, mask the politics of space and place, such as institutional power, gender, race, and cultural inequalities. In other words, such metaphors can be a challenge for students to relate to given the diverse backgrounds from which they come. The consequence, then, is the neglect of “material spaces and actual practices” (Reynolds, 1998, p.14). Tangible space is very much tied to the discursive spaces of instruction, and these areas deserve critical attention.

If we want students to join the academic conversations taking place in writing classrooms, we must acknowledge the politics that can be communicated through design (intentionally or not) on higher education campuses. Fleming (2008) argued that the greatest barrier we are met with today “in more equitably distributing rhetorical voice in our society may be the environments in which young people learn to speak, write, listen, read, tell stories, and argue” (p. 194). As a result, we cannot ignore the academic spaces where these activities take place or have the potential to take place, given the institutional culture. Like Reynolds, Benson (2010) addressed the political implications of space, specifically at the university level, noting that school environments put forth their own “scenarios of

colonization” (p. 556). Nagelhout and Blalock (2004) have similar views, as they argued that learning environments are often devalued at the university level; classrooms “situate students in specific physical spaces, constraining or restraining the movement of students and teachers” (p. 135).

Nagelhout and Blalock’s ideas about the constraining nature of classroom spaces are addressed by Mirtz (2004) as well, who has discussed the physicality of writing classrooms in terms of furnishings and mobility. She wrote:

The movement and nonmovement of the classroom furniture is as much a function of what the teacher and students believe about classroom behavior, and thus about classroom control, authority, and resistance, as about the furniture itself. Because of that dual dynamic, the movement of classroom furniture can not only support but push the teaching and learning taking place...movement itself causes changes in the perception of authority and in the resistance behavior in both teachers and students.
(p. 16)

The mobility (or lack thereof) of furnishings in a classroom space, as well as students’ and teachers’ willingness to move within these spaces are physical manifestations of traditional power relationships in higher education. Murray (1982) acknowledged that simply positioning oneself alongside students can change the traditional power relationships that are so often communicated in classrooms. He wrote:

When at last I found that I could remain in my seat, sitting at the same level as my students, I listened in a different way, and perhaps they were able to speak to me in a different way when I was not looking down at them and they were not looking up at me. (p. 183)

Mirtz argued that spaces are used to control – that is, instructors establish and uphold their authority with spatial arrangements (sometimes unconsciously) in classrooms. She added that institutions set up a hierarchy of classrooms that denote a hierarchy of courses and faculty, which aligns with Grego and Thompson's (2007) idea that academia is based on a hierarchy of locations. Mirtz also pointed out that students, as well, position themselves physically in a classroom in order to control the extent to which they engage. Thus, the ability to move within the space is important; movement in a learning space is directly tied to thought, and ignoring this idea “is to ignore movement’s ability to foster new relationships, which can lead to critical thinking” (Mirtz, 2004, p. 21) – and by extension, more thoughtful, productive writing.

A spatial design that inhibits movement not only reinforces a top-down political perspective in a learning space, it also interferes with the communication needed for invention to take place. Bruffee (1998) argued that writing is about conversing with others and that these conversations happen best in collaborative workgroups. Classroom spaces should support this kind of interaction, and they frequently do not. Educators should “resist the traditional mindset in educational architecture” (p. 260), which is the usual lecture hall with fixed desks or an immobile computer lab; such an arrangement encourages the one-way

transmission of knowledge and reinforces the idea that the instructor is the exclusive holder of information. For writing conversations to take place with ease, both students and teachers must be able to move freely about the room. Ideas about movement in spaces have also been discussed by humanistic and cultural geographers who study the human experience in space and place (Cresswell, 1996; Massey, 1994; Tuan, 1977). Yi-Fu Tuan (1977) wrote that the movement a space allows creates a strong sense of place for people; “ideas develop out of movement” (p. 52), and architectural space “articulates a social order” (p. 116). Massey (1994, 2005) theorized that place is a product of interrelations and is always under construction; places continue to change by our constant movement through them. A place is “always unfixed, contested, and multiple” and has no singular identity or history (Massey, 1994, p. 5). As a result, places are socially constructed. These ideas align with Mirtz’s argument that, “Learning is movement and change. Movement creates new social relationships in the classroom” (p. 27).

The power relationships expressed regarding movement in places and spaces have also been discussed at length by scholars in Human and Cultural Geography. In her discussion of the concept of power geometry, geographer Doreen Massey (1994) asserted:

For it does seem that mobility, and control over mobility, both reflects and reinforces power. It is not simply a question of unequal distribution, that some people move more than others, and that some have more control than others. It is that the mobility and control of some groups can actively weaken other people. (p. 150)

Similarly, Cresswell (1996) argued that controlling movement is important to those concerned with preserving “their own definition of order” (p. 87). When we consider these ideas in terms of classroom space, we recognize that teachers have traditionally controlled students’ movement in the classroom, and “Spatially, the teacher’s pedagogical authority is reinforced by a physically central position in the classroom” (Kent-Drury, 1998, p. 392). Further, the design of the room (which is frequently implemented by departments and persons who do not actually use the space) can limit an instructor’s mobility, which can influence the pedagogical choices he makes, as well as the level of social interaction between students in the class.

Bruffee (1998) pointed out that specific classroom designs are particularly supportive of collaborative learning, such as those outfitted with movable seats and tables. He argued that the traditional computer lab layout (with fixed desktop computers in rows) is an obstacle to dialogue and group work. Similarly, Bemer, Moeller, and Ball (2009) noted that traditional computer labs may limit collaboration, while the material conditions of a “mobile” computer lab (furnished with laptop computers and modular furnishings) can be viewed as “affordances to collaboration” (p. 140). For example, desktop computers with sizable towers or monitors can create unwanted visual barriers that interfere with students’ sightlines (Bemer et al., 2009; Bruffee, 1998; Hochman & Palmquist, 2009). Moreover, lab layouts where the computers are configured in rows with a teacher’s station at the front of the room support a hierarchical pedagogy and the one-way transmission of knowledge from teacher to student (Handa, 1993). Changing the physical environment to support collaborative pedagogies (such as peer review groups), has the ability to change the social structure of the

classroom, which in turn “changes the nature of the authority the teacher exercises” (Bruffee, 1998, p. 69). Other composition scholars have also noted furnishings and equipment can influence social relationships in the classroom (Kent-Drury, 1998; Meeks, 2004). Furnishings not only have ergonomic concerns, but are also a “maker of power dynamics” (Meeks, 2004, n.p.).

Scholars in computers and writing have also discussed a space’s built pedagogy. For example, Bemer, Moeller, and Ball (2009) argued that the physical layout of a computer lab has the ability to influence “the relationships and work scenarios that take place within them” (p. 141). They added, “As often as we tell students that good writing is collaborative, they will likely believe it more when they see it reinforced in the thoughtful design of the workspaces we have under our control” (p. 141). If this is our pedagogy in writing studies, and if we accept that knowledge construction has changed over time, then our learning spaces should both reflect our pedagogical practice and support the needs of twenty-first century learners.

Learning Spaces

Learning spaces have been studied from a variety of perspectives in recent years; however, the bulk of the empirical research in this area has come from the fields of science education. In particular, the “studio” classroom design, which is typically characterized by movable furniture, wireless computing and projection, and wall space for the sharing of work, is employed “almost exclusively by science, math and engineering courses” (Taylor, 2008, p. 218). The studio model in STEM can be traced back to the work done at Rensselaer

Polytechnic Institution in the early 1990s, which involved a curriculum overhaul of the school's large enrollment classes where traditional instructor lectures were replaced with an active learning model in a technology-rich environment (Wilson & Jennings, 2000).

The work of Robert Beichner and his colleagues (Beichner et al., 1999; Beichner et al., 2007) is of particular note, as their development and research of the SCALE-UP (Student-Centered Active Learning Environment with Upside-down Pedagogies) Learning Initiative in physics education spans over seventeen years and has been implemented and adapted at institutions worldwide. The SCALE-UP model is designed to promote the formation of learning communities through a technology-rich, active learning environment. Active learning is encouraged through a hands-on pedagogy, as well as the physical design of the classroom, which includes round tables (and D-shaped tables for precollege classrooms), LCD monitors and white boards on the walls, and no formal classroom “front.” They wrote, “an effective studio class will take place in a room where the instructors can easily move around to interact with each group, identifying and helping students with difficulties, as well as ensuring that no student can avoid interacting with instructors by hiding in the middle of the row, away from the lecture hall aisles” (Beichner et al., 2007, p. 3-4). Results from these studies have shown an increase in conceptual understanding, improved attitudes, higher class attendance, and reduced failure rates for women, minorities, and other “at risk” populations. The work in this area is foundational, as the model has been examined extensively to explore how the space, technologies, and the active learning pedagogy work together.

Researchers at the Massachusetts Institute of Technology (MIT) have done similar empirical research in their Technology-Enabled Active Learning (TEAL) project, which was adapted from the SCALE-UP model. In the TEAL model, first-year physics students work in a studio environment in teams where they use visualization software to learn introductory concepts. In their study, Dori and Belcher (2005) examined how the learning environment affected students from social, affective, and cognitive perspectives using mixed methodologies. Similar to the findings of Beichner, Bernold et al. (1999), the researchers concluded that the social interactions between the students in their teams played a key role in how they grasped concepts and built knowledge. Their findings also indicated that students working in the TEAL model made statistically significant improvements in understanding concepts compared to those students taught in a traditional lecture class. The findings from the research of both the SCALE-UP and TEAL initiatives support the social constructionist and collaborative learning models discussed above.

The SCALE-UP model has also been researched from other perspectives outside of learning outcomes, which has shed light on how students respond to a nontraditional learning space and active learning pedagogy. Gaffney, Housley-Gaffney, and Beichner (2010) examined students' expectations when working with the reformed pedagogy that is the foundation of SCALE-UP. Gaffney et al. surveyed physics students at three universities regarding their expectations about having class in a SCALE-UP room, which the researchers posited could be a "jarring reality for a college student entering a classroom that is not only physically different, but also promotes participation in ways that are unfamiliar or uncomfortable" (p. 010102-1). The results of student surveys revealed that students initially

expected a lecture-style class that would not require them to share their work or communicate regularly with their peers. Although their expectations were not met, the quantitative results indicate that students responded positively to this different pedagogical model.

While Gaffney, Housley-Gaffney, and Beichner (2010) explored student expectations, Taylor (2008) examined the effect of the classroom space on the instructor's pedagogy. She argued that research from this perspective is particularly significant as more campuses adopt studio classrooms. Taylor examined a freshman Astronomy course and a graduate-level Genetics course both taught in a studio classroom. Unlike the fixed furnishings in the studies above, this studio classroom was characterized by light-weight chairs and tables that could be easily rearranged. Taylor's study revealed that both faculty members teaching these courses incorporated active learning strategies into their courses to a degree; that is, one teacher reported that she had no intention of changing her pedagogy while teaching in a studio classroom but found herself doing so based on the spatial design of the room, while the other teacher purposefully planned active learning assignments based on the resources in the room. The instructors reported that the space itself was a catalyst to their adoption of an active learning pedagogy, which they believed encouraged more class discussion, and collaboration and communication between students. Taylor concluded that this "indicates that even teachers who are not inclined towards active learning pedagogy can be enticed by studio space to incorporate such pedagogy into their classes" (p. 233); her research aligns with the observational findings from Whiteside, Brooks, and Walker's (2010) study of two sections of an introductory biology course taught by the same instructor but in two different spaces – one active learning classroom (ALC) based on the SCALE-UP model,

and the other in a traditional lecture room. They found that “despite the professor’s explicit attempts to conduct the same learning activities in both sections, he behaved quite differently in the two classrooms, lecturing significantly more in the traditional room and conducting discussion significantly more in the ALC” (“Space Impacts Instructor and Student Behavior” section, n.p.). The findings from Taylor (2008) and Whiteside, Brooks, and Walker (2010) vary from Hunley and Schaller’s (2009) findings from their study of different classroom layouts and pedagogical practices, where they found that instructors not comfortable with varying their pedagogy were inclined to arrange even the most “innovative spaces so that rooms would have a ‘lecture room’ feel” (p. 30).

The results from several studies on active learning/flexible classrooms also indicated that instructors perceived their relationships with students as more egalitarian (Taylor, 2008) and more equitable (Dittoe, 2002), as well as a change in their role from that of teacher to facilitator or coach (Whiteside, Jorn, Duin, & Fitzgerald, 2009). These studies suggest that power dynamics between the instructor and students can be impacted by the learning space and the kinds of pedagogy practiced within it. Hunley and Schaller (2009) wrote that students in their study reported feeling less responsibility to participate in a traditional classroom (with the instructor positioned at the front); as a result, they concluded that student engagement is more profound when students are situated in a learning space where they “hold ownership” (p. 34); in addition, they reported that “noninteractive pedagogies” hindered academic engagement (2006, p. 13.9).

Given the varying results related to instructor perceptions and use represented in these studies, we should consider how writing pedagogies might be encouraged or discouraged based on classroom design, as well as the perceptions of both instructors and students who inhabit these spaces. Additionally, the instructor's own teaching and learning philosophy, and how deeply rooted he or she is in that philosophy must also be considered when researching learning spaces. As noted earlier, Hunley and Schaller's (2009) research on the relationship between pedagogy and learning spaces revealed that the faculty participants in their study who did not try out new pedagogical approaches would frequently configure the room to reflect a lecture hall. While being in a non-traditional (i.e. lecture) room increased their awareness of different teaching approaches, "they typically failed to follow through with innovative pedagogical practices, preferring to adapt the space to their own style" (p. 30). More critical research on the role space plays in teaching would help us learn more about individual pedagogies and the attitudes that influence the use of innovative learning spaces. The instructors in Taylor's study also reported a greater sense of social cohesion among their students, which aligns with the strong social connections observed between students in the studies by Beichner, Bernold et al. (1999) and Dori and Belcher (2005). Such research would be particularly beneficial in Composition Studies, as process and active learning pedagogies have been widely adopted and are encouraged. If we accept Bakhtin's dialogical principle (Nystrand et al., 1993) and the notion that writing is about conversing, then research on the role the classroom space plays in social interactions also deserves more attention. It stands to reason that if stronger social connections are facilitated through an

active learning approach combined with a nontraditional physical environment in STEM disciplines, then social cohesion could also increase in writing classrooms.

While some studies and published articles regarding learning spaces reported favorable results on learning outcomes and student engagement (Beichner et al., 1999; Brooks, 2011; Taylor, 2008; Whiteside et al., 2010), some learning space scholars (Boys, 2011) argued that the field is an area that is under-researched, “worryingly under-theorised” (p. 4), and often grounded in myths that “have become the ‘common sense’ we think *with* rather than *about* (p. 3, emphasis in original). For example, Boys (2011) emphasized that one of these myths is that “formal” and “informal” learning are binaries, which can be particularly problematic:

the use of the terms ‘formal’ and ‘informal’ learning often ‘jump’ from describing differences between educational sectors inside and beyond the university to describing types of spaces within a university, to, by implication, describing better and worse kinds of education. This problem can be exacerbated when ‘formal’ and ‘informal’ modes of learning are simplistically translated into spatial/representational design metaphors, rather than related through specific, situated learning and teaching practices” (p. 3).

Further, she asserted that there are several myths engrained in a large portion of the current work in learning spaces, including the assumptions that 1) higher education learning and teaching actually needs improving, and 2) that teaching and learning can be improved “through the development of both physical and virtual innovations and flexible learning

spaces” (p. 3). As a result, more research is needed that interrogates these assumptions and sheds light on the usefulness (or perceived usefulness) of flexible classrooms, especially in Composition Studies, where collaborative, active learning pedagogies are valued and practiced.

Adopting a critical stance involves questioning those “common sense” assumptions and requiring evidence for support. Tom, Voss, and Scheetz (2008) noted that many of the published reports on learning spaces contain positive “assertions of effectiveness rather than evidence” (p. 46). In discussing future research, Taylor (2008) encouraged us to think more critically about the elements in learning spaces that are the most important for teaching and learning. To answer this call, greater specificity with our targets, such as focusing on specific types of furnishings, technologies, or disciplinary activities may also reveal more about the relationship between space and learning. For example, Taylor (2008) mentioned that a small percentage of students in her study reported that the studio classroom made them uncomfortable due to the changing layout of the room. She also reported that one student in the study was bothered that there was no traditional front in the room and that the space was not set up for lecture. In a pilot study at the University of Minnesota, a hearing-impaired student who read lips reported that following the instructor’s comments and class discussion in a studio classroom was a challenge (Whiteside et al., 2009). In addition, prior classroom experiences inform students’ expectations which have the potential to affect their “satisfaction, motivation, and perhaps even their ability to learn” (Gaffney et al., 2010); Hunley and Schaller (2009) also found that students’ perception of the classroom space was influenced by their previous experiences. Boys noted that having a flexible space with mobile

furnishings “does not automatically mean that students will feel empowered or that equipment will be moved...it depends on the conventions and assumptions – the ordinary social and spatial practices – that participants bring to a space, the activity and the context” (p. 129-130). These experiences and social practices could be influenced by a number of variables, including differences in age, race, gender, ability, class, and/or culture, not only for students, but also for instructors. Exploring student perceptions of learning spaces may allow us to better understand students who learn differently.

Studying a Flexible Composition Classroom

The scholarship coming from Rhetoric and Composition regarding physical classroom design is largely anecdotal; as a result, there is a dearth of empirical studies on the role the learning space itself plays in relation to writing instructors and students. In his article “The Intelligent Design of Writing Programs: Reliance on Belief or a Future of Evidence,” Chris Anson (2008) argued for the reinvigoration of systematic inquiry and IMRAD (*Introduction, Methods, Results, and Discussion*) research in Composition Studies. Drawing on the work of Haswell, he pointed out the decline of empirical research in the field over the last 30 years in favor of more theoretical work. As a result, composition scholars and practitioners have had to rely on studies conducted as long as 40 years ago, “under different conditions, with different populations raised and schooled with different values and experiences, and before the advent of technology and digital media” (p. 20). Anson wrote that if those in Composition Studies “continue to rely on *belief* in our pedagogies and administrative decisions, whether theorized or not, whether argued from logic or anecdote, experience or conviction, we do no better to support a case for those decisions than what

most detractors do to support cases against them” (p. 11-12, emphasis in original). Reynolds (1998) argued for a specific focus on place in Composition Studies, where she called for a shift from the study of identity to asking questions about boundaries, movement, “locatedness, surveillance, and sense of place” (p. 138).

Scholars studying learning spaces have recognized the lack of research in this emerging area (Boys, 2011; Temple, 2008), and have called for an increase in the sharing of knowledge, conversation across the disciplines, “and more rigorous research into the appropriate conceptual frameworks and methodologies for analyzing and improving learning spaces” (Boddington & Boys, 2011, p. xii). Boys (2011), who argued that space and pedagogy are not mutually exclusive, wrote, “what is required is a better understanding of the range of existing and potential teaching and learning modes in a particular situation, as well as the particular spatial and architectural conditions which can support them” (p. 18). Similarly, Pearshouse et al. (2007) have argued that deeper qualitative research is needed to further illuminate the relationship between learning spaces and pedagogy. Taylor (2008) pointed out that much of the literature on learning spaces is focused on the space’s effect on learning, while more research is needed on how the space impacts teaching. Empirical research is critical, and detailed, replicable studies are necessary for us to better understand how material affordances in the writing classroom impact (or do not impact) students and teachers from varying backgrounds, and the larger relationship space has with active learning.

This dissertation is a response to the call for more empirical research of learning spaces and the growing need for systematic study of classrooms designed for writing instruction. Through an ethnographic study of a “flexible” first-year composition classroom, one that is technology-rich and equipped with mobile furnishings and displays, I will explore both instructor and student behaviors and perceptions in the space and will address the following research questions:

- RQ1: How does a composition instructor utilize the furnishings, space, and technology in a flexible classroom?
- RQ2: How does the instructor perceive the furnishings, space, and technology in a flexible classroom?
- RQ3: How do composition students utilize furnishings, space, and technology in a flexible classroom?
- RQ4: How do students perceive furnishings, space, and technology in a flexible classroom?

This study is not meant to be evaluative, but descriptive and exploratory in nature. While scholars from varying disciplines have explored the nature of online and hybrid learning environments (Garrison & Vaughan, 2008; Lockard & Pengrum., 2006; Mehlenbacher, 2010; Warnock, 2009), the scope of this research will be limited to the physical environment of a classroom and the experiences and perceptions of the users in a face-to-face writing class. I draw on the work of Torin Monahan (2002) to define the term “flexible,” for this study. He defined “physical flexibility” as “the adjustability of a space to the practices of individuals, such as meeting special sensory and/or mobility needs of students,” and he cited movable furnishings as an example (“Flexibility in Educational Architecture” section, n.p.). I am also including resources in the space such as student-owned laptop computers, LCD monitors, and

mobile whiteboards as additional examples, as these material affordances have the potential to increase both the flexibility of instructors with their teaching, and assist students with their learning. Theorists in Human Geography and Phenomenology (Cresswell, 1996; Massey, 1994, 2005; Seamon, 2000; Tuan, 1977) have made varying distinctions between the terms “place” and “space,” and these distinctions are the subject of ongoing, scholarly debate. While exploring the difference between these terms (as well as the problematic binaries that are often set up between them) is an important area of research, making a complex distinction between “place” and “space” is beyond the scope of this study. For the purpose of this research, I will use the term “learning space,” as this is the terminology used in Learning Space literature to denote the “wider range of venues for teaching and learning” (Brown & Lippencott, 2003) on higher education campuses. This study will interrogate some of the “common sense” assumptions (Boys, 2011) that pervade much of today’s writing on learning spaces and will shed light on role that flexible, material affordances, such as mobile furniture and multiple projection displays play in relation to composition instructors and students while they are situated in a classroom space.

CHAPTER 2: METHODS

In order to design a study that most effectively explores the research questions posed in Chapter 1, a brief review of other methods in learning space research design is useful. There is a growing body of literature in the area of learning space design, and the subject has been studied across the disciplines, particularly in Science, Technology, Engineering, and Math (STEM), architecture and design, environmental behaviorism, library sciences, and the scholarship of teaching and learning. Additionally, learning spaces have been studied from a variety of perspectives, such as how a space impacts learning outcomes, student engagement, pedagogy, and student/instructor perception.

Learning Outcomes Model

Several researchers studying learning spaces have targeted learning outcomes as a means of gauging the impact classroom spaces have on students. Of particular note is Brooks' (2011) article on a quasi-experimental study done at the University of Minnesota, where researchers attempted to control a number of variables to "isolate the impact of the physical spaces on student learning" (p. 719) between traditional (lecture) classrooms and Active Learning Classrooms (ALCs). Two sections of an introductory biology course taught by the same instructor at the same time of day (on different days) were examined in one phase of the study; the instructor followed the same schedule, lesson plans, assignments, and exams "and made considerable efforts" to teach the course the same way to each class (p. 722). As a result, the learning space itself was identified as the only systematic variable.

The only student characteristics considered statistically significant in the two classes were their composite ACT scores, with students in the traditional classroom having a higher score.ⁱ Brooks explained that since most individuals in these courses were first-year, first-semester students, composite ACT scores were the “only consistent and standardized measure of students’ academic ability” (p. 722).ⁱⁱ The final course grades were compared to the composite standardized test scores, and the researchers concluded that students in the ALC (who had lower ACT scores) “learned at a higher rate” than students in the traditional classroom (p. 724). Brooks wrote that the findings from this portion of the study “are the first to demonstrate that controlling for nearly all other factors, physical space alone can improve student learning even beyond students’ abilities as measured by standardized test scores” (p. 725). Such work, he added, surpasses the limitations of studies done by Beichner, et al. (1999), and Dori and Belcher (2005), which “obscured the effects of the physical space by combining redesigns of learning spaces with comprehensive curricular revisions” (Brooks, 2011, p. 725).

While the findings from the work of Brooks (2011) and Whiteside, Brooks, and Walker (2010) are favorable in terms of learning outcomes, other scholars have noted the complexities and challenges inherent with such an “outcomes model” (Bligh & Pearshouse, 2011; Temple, 2008). Direct associations are problematic and “probably implausible” (Bligh & Pearshouse, 2011, p. 8), as the connections drawn “between space design and learning outcomes [are] weak at best” and can frequently hide multiple factors (Temple, 2008, p. 237). Boys (2011) would likely agree with this perspective, as she wrote, “we cannot separate out the participants, the activities and the contexts in analyzing how space works; to

do so is to over-simplify and potentially misunderstand” (p. 129). While Brooks’ study emphasized the impact of the learning space itself, it does not account for other factors that may be too nuanced to control. For example, although the instructor reported teaching the same way, there is no discussion in this publication of how the space might have affected the teaching or how the instructor’s relationship with two different classes might have played a part in his choice of teaching methods. In addition, the use of composite ACT scores also assumes that standardized testing is an accurate predictor of a student’s college performance, a position that continues to be contested (Gilroy, 2007; McDermott, 2008). The study considered students holistically as a class, which does not account for any individual differences in abilities, race, culture, gender, previous educational experiences, or other variables that could have affected their learning outcomes. Bligh and Pearshouse (2011) commented directly on the methods discussed in Brooks’ 2011 report:

As a piece of research, this work is useful in demonstrating that physical space *can* improve learning, yet as a technique for [Learning Space evaluation] this work is problematic both in its construction (we design learning spaces with the understanding that tutor behaviour, teaching session duration etc. *will* change) and in its intensiveness of labour... (p. 8)

While space may predispose people to certain kinds of behavior (Cornell, 2002; Strange & Banning, 2001), Boys (2011) asserted that architectural space should be “understood as neither determinist ‘controller’ nor merely neutral ‘container’, but as always in partial interaction with the practices that take place in it, and never separate from the perceptions and experiences of its occupiers” (p. 121). Commenting on their research published in 2011,

Brooks (2012) cautioned that we should “be suspicious of over-simplified interpretations of these results that might attribute agency to what is really an inert physical space, thereby suggesting that the space directly caused increased levels of learning” (“Space and Consequences,” Literature Review section, n.p.). Brooks’ 2011 report gives us one lens through which to view a learning space – a lens that focuses on grades and test scores. However, learning environments are highly complex, and qualitative methods can give researchers a deeper understanding of the social, cultural, and environmental factors that shape how teachers and students both use and perceive learning spaces.

An Ethnographic Approach

A number of scholars have published mixed methods (student and instructor surveys, interviews, and observations) studies on a variety of learning spaces (Beichner et al., 1999; Gaffney et al., 2010; Hunley & Schaller, 2006; Nixon et al., 2008; Whiteside et al., 2009), and have made valuable contributions to the emerging field of Learning Space studies. These studies shed light through the triangulation of both qualitative and quantitative data on the relationship between space and student learning. However, there is a dearth of qualitative research, particularly ethnographic studies, of learning spaces and their users. Several scholars have advocated an ethnographic approach in the study of learning spaces (Boys, 2011; Melhuish, 2011a) so that we might explore the complex relationships students and instructors have with their teaching and learning environments. Claire Melhuish (2011a) wrote that the extensive range “in the conditions of human embodiment, cultural and social experience entails a level of complexity in evaluating the process of human interaction with spatial environments” (p. 23); as such, ethnographic methods allow the researcher to capture

those complexities and more sophisticated participant responses (Boys, 2011). Boys (2011) asserted that ethnography is particularly appropriate for interrogating and exploring the “common sense” assumptions about learning spaces that exist in much of the published work in the field. Learning cannot just be “read” from a space – “learning activities are always about more than the space; and space is always about more than just the activities that go on in it” (p. 85). Citing Melhuish’s (2010) ethnographic study of learning spaces, Boys (2011) argued that these methods are “informed by a close reading of existing research about peoples’ interactions with material space” (p. 85). Melhuish’s (2010) case study examined student and faculty perceptions of three technology-rich learning spaces at universities in the United Kingdom in an effort to learn more about how those spaces relate to larger social and cultural aspects of the institutional environment. Melhuish (2010) was clear that her case study was not designed to measure the *“actual impact”* of the spaces on learning outcomes; instead, the aim was to explore the participants’ perceptions of that impact on their own teaching and learning experiences (p. 3, emphasis in original). While not an ethnographic study, in their research of student expectations in SCALE-UP physics classes, Gaffney et al. (2010) concluded (using several survey instruments) that examining students’ expectations is worthwhile, especially if students are in a class where a reformed pedagogy is being applied; in addition, instructors can also evaluate how well they are orienting students to a new pedagogy. It is important to note that Gaffney et al.’s study did not isolate factors regarding the physical layout of the space. The physical environment is described, but the active learning pedagogy and the physical environment are treated as too interconnected to be considered separate articles. In addition, the researchers noted that prior classroom

experiences inform students' expectations which have the potential to affect their "satisfaction, motivation, and perhaps even their ability to learn" (p. 2). Learning spaces can be studied from an outcomes perspective; however, student affect and perceptions are also variables that reveal critical information that influence how innovative learning spaces are designed and how instructors teach in them. From the work of Gaffney et al., we see that student perceptions and attitudes can be revealed through quantitative methods; however, an ethnographic approach using interviews and observations can yield researchers more information-rich data on the relationship between users and the learning space by capturing individual voices. An ethnographic study offers participants an opportunity to unpack their responses, which can lead to further triangulation with quantitative survey data.

Research on the relationship between physical spaces and people "should be entered into free of any 'a priori' theory and concepts or predetermined methodological procedures" (Melhuish, 2011a, p.26). Phenomenological geographer David Seamon (2000) would likely agree with Melhuish, as he argued for a "radical empiricism" in the study of the human experience in place; this empiricism "arises directly from the researcher's personal sensibility and awareness rather than from the usual secondhand constructions of positivist science – e.g., *a priori* theory and concepts, hypotheses, predetermined methodological procedures, statistical measures of correlation, and the like" ("Section 3.2. A Radical Empiricism"). Ethnographic methods offer researchers an opportunity to immerse themselves in the environment to gain greater insights on possible associations between space, pedagogy, and student learning; while quantitative methods offer valuable opportunities to gain generalizable data, an ethnographic study has the potential to reveal patterns that emerge in a learning space, which

could be based on a number of factors including types of learners, types of instructors, the discipline being studied, and institutional culture.

Boys (2011) pointed out that an ethnographic approach “is as much about observing what people do, as about what they say, with ‘embodied’ enactments as well as discursive reflections” (p. 86). Drawing on the work of urban studies scholar and philosopher Jean-Francois Augoyard, Melhuish (Melhuish, 2010) wrote:

Walking, movement, and the associated process of verbally naming, or describing, different elements of the environment, reveals much about the way different individuals relate to spaces and environments and embodies the social dimension which activates and deconstructs the original formal intentions mapped out on the drawing board. (p. 9)

Similarly, de Certeau (1984) argued that the most effective way to explore the human experience in place is to experience that place for oneself; for example, by walking in a city, subjective and objective experiences are woven together so that we might better understand how humans take ownership of spaces and appropriate them for their own needs. Based on these ideas, a qualitative approach to the study of learning spaces has the potential to reveal complex and nuanced perceptions of the spaces, as well as our own preconceived ideas about how students learn. In turn, the typologies that can potentially be discovered through ethnography and can then be triangulated with quantitative data from the same participant sample for added validity. For example, in their study of how students used library spaces at the University of Rochester, Foster and Gibbons (2007) applied several qualitative methods

that allowed them to triangulate and verify their data; in particular, they noted that photo surveys combined with student interviews helped them see their “students as individuals with different personalities, preferences, and unique environments” (p. 45). Their thoughts on the individual nature of this method supports Boys’ (2011) assertions about the benefits of ethnography, as she wrote that these methods capture the “sophistication of participant responses” versus simple “likes and dislikes” of the physical properties of the space (p. 87).

An Ethnographic Study of a Composition Classroom

In order to capture individual voices of the users in the space, I chose to apply ethnographic methods in this dissertation. A qualitative approach is the most appropriate, as the use of a flexible learning space can best be examined as instructors and students operate in their natural work/school setting. Given the complexities discussed earlier in this chapter regarding isolating confounding factors in learning space research, I chose not to include learning outcomes (i.e. grades) in my measures. Analyzing student and teacher perceptions and the use of the newly designed space from an ethnographic perspective has the potential to reveal more detailed, nuanced information. The circumstances and variables associated with this study are complex and not easily measured through quantitative means, and as Patton (2002) wrote, qualitative methods “facilitate the study of issues in depth and detail” (p. 14). Observing the environment of this specific composition classroom is important, as different universities and their associated first-year writing programs may have different cultures; in addition, teaching styles and student populations may vary greatly. As such, I applied the technique of participant observation to gain a greater understanding of how the instructor/TA and students in this particular class used and perceived a flexible composition

classroom. I also paired these observations with personal interviews with the class instructor, teaching assistant, and a sample of the students as a means of triangulating the data obtained from observations. Interviewing users of the space is of particular importance, as Melhuish (2010) wrote, “Different individuals’ experience of embodiment within particular settings, and their perception and response of the same settings may differ considerably, reflecting differences in age, gender, personality, physical characteristics, and cultural and social experience” (p. 7). Combining interviews with observations as “mutually reinforcing qualitative techniques is a bridge to understanding the fundamental people-oriented nature of qualitative inquiry” (Patton, 2002, p. 27-28). In the same vein, Becker and Geer (1957) argued, “Participant observation makes it possible to check description against fact and, noting discrepancies, become aware of systematic distortions made by the person under study; such distortions are less likely to be discovered by interviewing alone” (p. 139).

Site

The site of this study was a first-year composition classroom at a large, southeastern public university. Student enrollment, including both undergraduates and graduates, is approximately 34,000; 44.2 percent of enrolled students are female, and 16.2 percent are underrepresented minorities ("Student Statistics," 2012).³ The first-year writing course at this institution, English 101: *Academic Writing and Research*, is a four-hour, one-semester required course that is taken primarily by incoming freshmen. The class follows a “writing-in-the-disciplines” curriculum, where students are asked to generate texts in a variety of

³ Underrepresented minorities include students who are African-American, Asian, Hispanic, Native-American, and Pacific Islander; this excludes international students.

disciplinary genres so that they might be more prepared for the academic writing they will do past their first year of college. Students may opt to take the program's introductory course, English 100, if they feel they need additional preparation with college-level writing before enrolling in English 101.ⁱⁱⁱ Taught almost exclusively by non-tenure track faculty and graduate teaching instructors, English 101 classes are capped at 22 students per section.

The objectives for this course focus on learning the rhetorical principles of audience and purpose as they relate to differing forms of "inquiry and writing across academic disciplines" ("First Year Writing Program Faculty Handbook,") as well as the evaluation of print and digital texts, argument development, and the practice of analytical reading strategies. Of particular note is the program's emphasis on active learning and the peer review process. Listed first in the program's faculty handbook under *Practices and Principles of Instruction* for first-year courses is the principle that:

Writing instruction is student-centered. Extended lecturing is rare. Instruction is participatory, designed to engage students in active examination of the purposes and critical features of new kinds of writing and to refine and adapt their developing skills for a range of rhetorical purposes. Varied instructional approaches are used to promote active engagement with writing, including independent work and learning in collaborative groups. ("First Year Writing Program Faculty Handbook,")

In addition to the endorsement and encouragement of varied, student-centered pedagogies, the universal course objectives (which are included on each instructor's syllabus) specifically address collaboration: "Students will practice critically evaluating their own and others' work

and collaborating effectively with other writers throughout the writing process" ("First Year Writing Program Faculty Handbook," "Learning Outcomes" section). The program's focus on active learning pedagogies makes the site of a first-year classroom at this institution well suited for studying how instructors and students use and perceive a flexible learning space, as small-group peer workshops are standard pedagogical practice. It stands to reason that if students are routinely participating in activities that involve varied instructional approaches and collaborative learning, then a flexible classroom could support this pedagogy.

First-year writing courses at this institution are held in several different kinds of classrooms, including desktop computer rooms, laptop computer rooms, and what the program calls "bring-your-own-laptop" (BYOL) rooms. The desktop computer rooms are arranged in a traditional computer lab layout, with computer stations arranged in rows; laptop classrooms are arranged in group tables that seat between four and six students, and each seat is outfitted with a university-supplied laptop computer that is tethered to the table. The BYOL rooms do not contain university-supplied computers; these spaces are designed for students who own their own laptops and agree to bring them to each class meeting. These rooms have enhanced wireless networking capabilities and are arranged in group tables (or pods) that seat between four and six students, depending on the room. Each pod is outfitted with an electrical outlet hub that accommodates up to six computers for charging. All the classrooms used by the first-year program are situated in the same building in the university's College of Humanities and Social Sciences.

The space that was studied for this dissertation was a newly redesigned BYOL room. This room was the first BYOL room of its kind in the program and was the focus of a pilot study several years prior to this writing (see Chapter 1). Over the course of about three years, the department converted several traditional classrooms (which contained tablet-arm chairs, but no technology for students) to BYOL rooms. This particular space is the largest used for first-year writing courses in the program, measuring 711 square feet; it has 12-foot ceilings and contains four floor-to-ceiling windows. Before the redesign, the room included four fixed group tables, which seated six students each; an instructor's lectern (approximately 7 feet x 2 feet) which housed a computer, document camera, DVD and VCR players at the classroom front; a ceiling-mounted projector and screen; a large wall-mounted whiteboard at the front of the class; and a wall-mounted chalkboard on the back wall of the classroom (see Figures 1.1-1.3).

The Director of the First-Year Writing Program partnered with the university's Design Services and IT departments, and me to come up with a new room design. Based on published research in the field of Learning Spaces and Composition Studies, classroom observations, and data collected from the pilot study, the team decided on a "flexible" model, which included all mobile furnishings. Infrastructure work was done between the fall and spring semesters of the 2011-2012 academic year, which included the installation of additional wall outlets around the perimeter of the room to accommodate for the loss of the electrical hubs that were stationed at each group table. The walls were painted a light purple, and five, 46-inch LCD monitors were installed around the perimeter of the room. Each

screen was outfitted with external video input cables⁴ that, in addition to displaying content from the instructor's lectern, allows students to hook up their laptops for displaying and sharing content on their own machines.

In this course, class size is capped at 22 students per section; however, more space was needed for the flexible environment to accommodate different sizes and styles of tables and to allow for the reconfiguration of the furnishings. As a result, it was decided by the design team that the class cap should be dropped from 22 to 20 students in the room to allow for the mobility needed to achieve a variety of layouts and give students adequate square footage for personal space. The new furniture for the room included several different types of tables and chairs, all on casters. Four of the tables, manufactured by Izzy, were square-like with two concave sides and two convex sides (approximately 24"x 60"), which allowed them to fit into multiple configurations; when configured individually, each of these tables accommodated four student seats. Six smaller, Izzy diamond-shaped tables (measuring 40"x 32") were also placed in the room; three diamond tables could be put together to create a larger table, which sat three to four students. The chairs paired with these tables were armless office-style chairs with upholstered seats that swiveled 360 degrees. In addition to these tables and chairs, the team also decided to provide self-contained seating in the room with the addition of eight contemporary, tablet-arm chairs (four *Node* chairs designed by Steelcase and four *Learn2* chairs by KI), which included tablet desk surfaces that swivel to the side or back of the chair, and have cup holders and under-seat storage for student gear.

⁴ VGA, HDMI, and DVI-D input cables with display port or mini DVI adapter for students with Mac laptops.

Both styles of the tablet-arm chairs swivel 360 degrees. Based on user research I conducted at the institution's main library, we also opted to include six double-sided, mobile whiteboards (measuring approximately 2.5 feet by 4 feet) in the room^{iv} (Figures 2.1-2.3). Since the new furnishings did not arrive until approximately three weeks into the semester (after the course had started), the instructor, TA, and students used the existing fixed pod tables and chairs without casters (Figures 1.1-1.3) during this time.

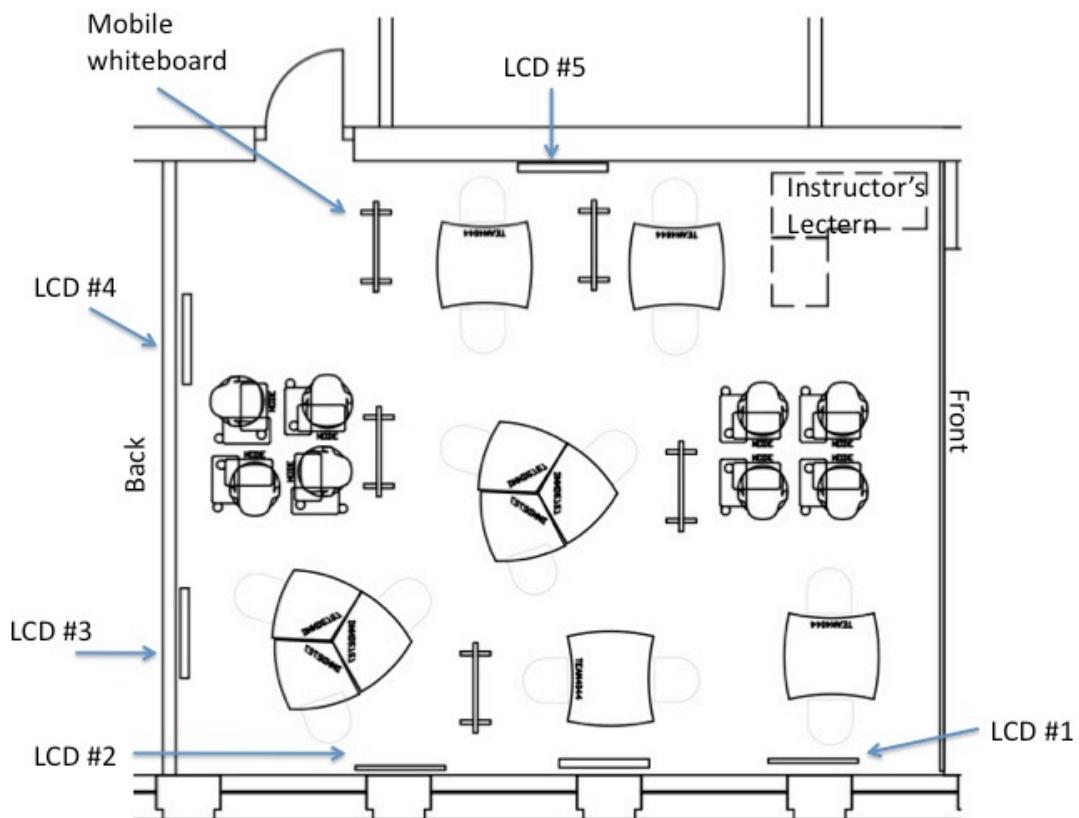


Figure 2.1: Diagram of the flexible classroom layout redesigned with mobile furnishings. A wall-length whiteboard and large projection screen are situated on the front wall. NOTE: Once occupied by the users of the space, the mobile furnishings were never configured in this arrangement. This layout was conceived for design and planning purposes only.



Figure 2.2: Photo of flexible classroom, view from front



Figure 2.3: Photo of flexible classroom, view from back

Data Collection and Participants

The participants in this study included the instructor, teaching assistant, and students in one section of English 101 during the Spring semester of the 2011-2012 academic year. The class met two times a week in 100-minute periods for fourteen weeks. Since each section of this course follows a set of standardized objectives, and since the course is a general education requirement, I employed typical case sampling to illustrate the most common uses and perceptions of the space in the sample. In other words, the class section was chosen because it was not “in any way atypical, extreme, deviant or intensely unusual” (Patton, 2002, p. 236). One instructor and his teaching assistant were approached and informed about the study, and they agreed to participate. I chose to include the instructor and teaching assistant in the study – versus examining students alone – based on the ideas discussed earlier in this chapter about the problems with treating space as a variable that can be isolated. Although her study emphasized the spatial and material characteristics of specific learning spaces, Melhuish (2011b) argued that “spatial and social interactions cannot be artificially separated” and that perceptions are influenced by broader “institutional agendas and through the immediate context of particular learning environments” (p. 90-91). Hunley and Schaller (2006) would likely agree, as they wrote, “Institutions that assess the use of learning spaces on their campuses must also ascertain pedagogical practices that yield optimal learning; space and pedagogy are undeniably intertwined” (p. 4). Similarly, research on active learning classrooms by Whiteside, Brooks, and Walker (2010) revealed “different learning environments affect teaching-learning activities even when the instructor attempts to hold these activities constant” (n.p.). Maximum variation sampling was also appropriate for

selecting students for individual interviews; this sampling technique “aims at capturing and describing the central themes that cut across a great deal of variation” (Patton, 2002, p. 234-235). Since attitudes, biases, and personal backgrounds of the participants vary, this sampling technique enabled me to document a student’s unique qualities, as well as patterns of use and perceptions that emerged across the subject sample.

The instructor observed for this study was a non-tenure track faculty member who had been teaching composition in the first-year program for the past twelve years. The instructor started teaching composition first as a TA in the institution’s Masters in English Literature program and has been a full-time lecturer for over ten years. He was interviewed four times – at the beginning, middle, and end of the semester, and one final interview was conducted a few months after the end of the semester as a follow up for clarification. During the first interview, the questions focused on the instructor’s academic and professional background, teaching philosophy and practice, and prior experiences teaching in different kinds of classrooms. In subsequent interviews, I posed questions designed to gauge the instructor’s perception of the resources in the flexible classroom and their usefulness to both him and his students, as well as classroom dynamics and his incorporation of collaborative activities (see Appendix A for a list of instructor questions from interviews 1-3). He described his teaching style as casual and noted that he tries to center his classes around discussion. When asked about what he hoped students take away from his classes, he said, “I’d like them to be better readers and listeners. I’d like them to think about what real writers do when they listen and when they read, and when they write, and when they operate as sort of a member of a community...I’d like them to see their writing as something that’s not done

in the vacuum.” He reported that he uses collaborative activities to add variety to long class periods, increase student engagement, and give students the opportunity to prepare their work for different audiences. The instructor taught three sections of this course back-to-back twice a week, starting in the mid-afternoon and going into the late evening; the first section was the class that was observed for this study.

The teaching assistant (TA) assigned to the instructor was a first-year Masters student in the department of English (studying literature). As part of the department’s teaching assistant preparation program, Masters students are partnered with an experienced faculty member in the first-year program during their second semester where they shadow their mentors and assist with teaching and grading. Typically, the teaching assistant prepares and teaches one unit of the curriculum during the semester under the supervision of the faculty mentor. This TA independently taught a “writing in the humanities” unit during the last several weeks of the semester. Since the TA had no prior teaching experience and taught for a limited time, I interviewed him only one time after the semester ended. Questions for the TA focused on his experiences teaching in the classroom, how he used the resources in the space, his perceptions of the usefulness of the room to students and to him, and the like.

At the beginning of the semester, 19 students were enrolled in the course (two students withdrew mid semester). The class was made up of seven females and 12 males; 17 students were classified as freshmen and two were sophomores. The students’ majors represented areas in engineering, animal and marine science, business administration, and textiles; five students had not declared majors. I invited students to participate in interviews

based on where they sat in the classroom and with whom. From very early on in the semester, I observed the class ossifying into several small groups. As such, I approached a few students from each group and invited them to be interviewed, as aggregate information based on my classroom observations was the goal. In addition, I asked two students who would routinely sit in the tablet-arm chairs (away from the group tables) to be interviewed. A balance of male and female students were approached, and all who were invited agreed to be interviewed. I chose to limit the sample size for student interviews to about half the total size of the class, as a smaller sample for open-ended interviews “adds a depth, detail, and meaning at a very personal level of experience” (Patton, 2002, p. 17). The table below provides specific background information about each student interviewed.

Table 2.1: Interview Participant Background⁵

Name	Gender	Age	Year	College Major
Olivia	F	18	Freshman	Nuclear Engineering
Steve	M	28	Freshman	Undeclared
Tyler	M	19	Freshman	Business Administration
Alison	F	19	Freshman	Animal Science
Deirdre	F	18	Freshman	Business Administration
Doug	M	18	Freshman	Criminology
Laura	F	19	Freshman	Animal Science
Matt	M	19	Freshman	Chemical Engineering
Brad	M	18	Freshman	Business Administration

⁵ All participant names are pseudonyms to maintain the study’s terms of confidentiality.

Students were asked a variety of questions designed to gain information about how they both used and perceived the flexible classroom (see Appendix B for a complete list). The length of the interviews for all participants ranged from 30 to 50 minutes, and all were digitally recorded and then transcribed.

Mapping Exercises

In addition to formal interview questions, I also asked the student interview subjects to participate in several conceptual mapping exercises related to the design of the flexible classroom. My use of conceptual mapping in these interviews was inspired by the methods employed by library researchers Foster and Gibbons (2007) and composition scholar Nedra Reynolds (2004). In their ethnographic study “Studying Students: The Undergraduate Research Project at the University of Rochester,” Foster and Gibbons examined the study habits of students in relationship to their use of space so that they could incorporate this data into the design of new library spaces. First, borrowing from urban planning and design, Foster and Gibbons employed a charrette-style workshop where they asked students to design their ideal library study space using posters, markers, and other supplies. Their top findings from the students’ designs included spaces that are flexible, comfortable, and gave them access to technology and support resources. Foster and Gibbons also invited students to lay out the furnishings that were going into the new spaces on library floor plans; they were surprised by the difference in the student-designed space versus what they had planned for the layout. For example, students viewed the use of particular tables and furnishings in vastly different ways. The research of Foster and Gibbons provides us with insights on how we think students will use a space versus the reality of how it is actually used. While the

needs of students in libraries may differ from their needs in classrooms, the charrette technique, as demonstrated by this research, is effective in gauging the perceptions, uses, habits, and needs of learners.

Mapping techniques have also been used by Nedra Reynolds (2004) in her research of students' perceptions of the surrounding areas and neighborhoods at the University of Leeds. Reynolds argued that the body "is imprinted with and affected by the spatial and social world in which it moves" (p. 42). With this idea in mind, she asked students to map the areas around their campus as "ethnic," "no-go," and "desirable" (p. 87) in order to find out more about their own socially constructed "mental maps." The term "mental mapping" denotes an individual's "cognitive capacity to understand where things are in relationship to one another, sense of direction, or sense of distance" (p. 82). She explained that mental maps hold "cognitive images in our own minds about a place, a route, or an area" (p. 82); as such, they reveal much about how we perceive the world and the ideologies behind those perceptions (p. 84). Her research demonstrated that students were reluctant to go to places they "perceived as marked by cultural differences" (p. 127). Conceptual mapping techniques such as the ones described above have the potential to give researchers insight on how comfortable students feel in a particular classroom, which could be tied to a number of factors including the instructor's pedagogical practices and the student's culture and prior experiences.

While the work of Foster and Gibbons (2007) reflects student habits in informal learning spaces in libraries, and Reynolds' (2004) research examined attitudes of difference

regarding spaces outside the boundaries of campus, mapping techniques can be applied to formal composition spaces to reveal deeper, more nuanced information that students might not disclose via formal interview questioning. As Reynolds asserted:

The same geographies that construct our notions of gender, race, class, age, or abilities also construct spaces of learning, which in turn become particularly complicated or fraught with meaning. When students walk into classrooms, they come with years of experience walking into classrooms; each person's mental map of past classrooms will be different. (p. 162)

With these ideas in mind, I developed a protocol for three conceptual mapping exercises for student interview participants to perform. In the first activity, the interviewee was given a blank sheet of paper and markers and asked to diagram his/her ideal learning space. For the second exercise, I provided the subject with a blank floor plan of the flexible classroom and cutouts of the furniture in the space; the participant was then asked to arrange the furniture into the configuration he/she liked best. In the final mapping activity, students were given another blank floor plan of the classroom and cutouts of the furniture, and then asked to map their seat and spatial preference in the room based on different composition-related activities, such as where they preferred to sit in if they were writing independently, their preferred location to do peer review, and the like (see Appendix B for a complete list of conceptual mapping protocols). Data revealed from these mapping exercises, particularly the activity where students were asked to identify their spatial preferences in the room, was used to further triangulate the data collected from both traditional interview questioning and my

observations in the field. These mapping activities proved especially insightful, as they gave the student a tactile way to think more critically about the space he/she had been inhabiting, which in turn gave me the opportunity to explore students' perceptions and actual uses of the flexible classroom more deeply through follow-up questions during each interview.

Field Observations

In addition to personal interviews, I was also an open participant observer in the class during the semester. Becker and Geer (1957) defined participant observation as the “method in which the observer participates in the daily life of the people under study, either openly in the role of researcher or covertly in some disguised role, observing things that happen, listening to what is said, and questioning people, over some length of time” (p. 28). I introduced myself to the class and the study at the first class meeting, noting that I was a graduate student researcher and that the purpose of my presence was not to evaluate the work they produced in the class in any way (since learning outcomes were not a measure in this study, I had no access to student work). I encouraged them to call me by my first name, and I defined my role to them as a member of the class who would be taking notes on how they used the material affordances in the room and who would ask them questions about how they felt about the space. I participated in the class to the extent that I attended meetings regularly (26, 100-minute class meetings over 14 weeks), sat with other students at or alongside group tables, and made small talk with them before and after class and during breaks. I engaged the students in casual, informal interviews during my observations to gain greater insight on a variety of factors that pertained to my research questions, such as their seat preferences, why they chose to use a particular resource for an in-class activity, and the like. On several

occasions I worked with students at group tables doing collaborative assignments given by the instructor or TA, such as searching or reviewing articles from the library's online databases or answering questions about an in-class reading. During each observation I took detailed notes (which were typed and expanded), paying specific attention to where students sat throughout the class, how the instructor, TA, and students used the devices and furnishings, the kinds of learning activities they were engaged in, and the levels of participation that occurred with both the old tables arranged in pods (during the first three weeks) and then with the new mobile furnishings. At the beginning of each class I diagrammed where the students were seated in the space, as well as the type of seat they chose. I periodically documented the movements of students, teacher, and TA for varying activities and furniture configurations with digital photographs and video taken with an iPad.

Data Analysis

My process of analysis included a variety of tools to organize, examine, and draw conclusions from the data collected from this study. After having the interviews transcribed and recording the extended field notes from the classroom observations, the data was uploaded to Dedoose, a data coding and analysis program. Employing emergent design and following the grounded theory process (Strauss & Corbin, 1998), I reviewed the interview and observation data in Dedoose for complete thoughts and ideas expressed in phrases, sentences, or paragraphs that related to the instructor's, TA's, and students' perceptions of the flexible classroom as well as how they utilized the material affordances in the space. I inductively coded the units through the technique of constant comparison, evaluating for

consistency of meanings, patterns, and themes, and testing for internal homogeneity and external heterogeneity.

Through this process, categories were identified, and operational definitions were assigned to the categories for all four research questions. A sample of the data from each research question was given to an independent rater for reliability testing, and the results of all inter-rater reliability were calculated with Cohen's Kappa. Five categories of use emerged related to the instructor/TA, and four categories were identified related to the instructor's perceptions. For the instructor/TA's use of the flexible classroom space, the strength of the weighted Kappa was .831 ("very good") with a 95% confidence interval in relation to the coding of categories. The strength of the weighted Kappa for the instructor's perceptions of the space was .804 ("very good") with a 95% confidence interval. For the student portion of this study, six categories emerged regarding student perceptions of the flexible classroom space. The strength of the Kappa for agreement for student perceptions was 1.0 ("perfect") with a 95% confidence interval. Six categories were identified that were associated with students' use of the classroom; the strength of the Kappa for agreement for this part of the study was .887 ("very good") with a 95% confidence interval.

CHAPTER 3: RESULTS: INSTRUCTOR'S USE AND PERCEPTIONS OF THE FLEXIBLE CLASSROOM SPACE

In this chapter I discuss the findings from the data collected from my classroom observations and interviews with the instructor and teaching assistant as they relate to the research questions: 1) How does the instructor/TA utilize the furnishings, space, and technology in a flexible classroom? and 2) How does the instructor/TA perceive the furnishings, space, and technology in a flexible classroom? Operational definitions are given for each of the categories identified for both research questions, and examples are described from the data that support each category. The data suggest that the instructors used the flexible classroom for several distinct purposes to support their teaching, and they perceived the space as having both positive and negative qualities that affected themselves and their students.

RESEARCH QUESTION 1: HOW DOES THE INSTRUCTOR/TA UTILIZE THE FURNISHINGS, SPACE, AND TECHNOLOGY IN A FLEXIBLE CLASSROOM?

The results from the analysis of the data gathered to address RQ1 reveal that the instructor/TA utilized the flexible classroom space for five general purposes: 1) to deliver content, 2) to assess cognition, 3) for cooperative learning, 4) to check in, and 5) to gather affective information.

To Deliver Content

In order for the instructor and teaching assistant to be the most effective in helping students build knowledge, they must continuously transmit information related to the study

and practice of writing; as a result, an important and practical use of the flexible classroom is to deliver content. The delivery of content in this study is defined as a one-way transmission of information from the instructor directly to the students within the classroom itself (as opposed to delivering content outside of class via email, et al.) and consists typically of lecturing, reading, informal speaking, or the sharing of media (such as digital images/videos). Equipment in the room that aided in the sharing of content included the instructor's lectern, which is outfitted with a document camera, computer, DVD/VCR, a large whiteboard at the classroom front, and six mobile whiteboards. The content delivered to students from the instructor and TA included items such as the course syllabus, lecture notes, assignment criteria, sample papers, articles, websites, and YouTube video clips. Much of the course content (such as the syllabus, assignments, and sample papers) was in a digital format and shared via the university's course management system on the instructor's computer (in the lectern) at the front of the classroom.⁶

While the instructor would read from a text or speak informally to the class on occasion, he regularly used LCD monitors to transmit content to the class, and I observed over the course of the semester that he used the main digital projector and screen less. When asked about his preference for tools for delivering content, he expressed a clear preference for the LCD monitors over the main projection screen. His preference aligns with comments he made in his first interview regarding the usefulness of the digital projector and screen in classrooms he had taught in previously. He noted that the quality of the projectors could vary

⁶ The instructor's delivery of information to students electronically in the form of email and the course's online management system outside of class is beyond the scope of this study and was not examined.

from room to room, and that, “They don’t project in a place where the students can all see them or where they don’t block other things that I need like a dry erase board or something like that.” Since there are five LCD screens throughout the flexible classroom, the instructor saw these as convenient tools that increased his mobility in the space; that is, having multiple displays for projection allowed him to read from the screens or use them as guides from locations in the space other than the classroom front:

I tended to prefer using the LCDs instead of the big screen rather than in addition to it. I just didn’t see a lot of value in the big screen once you had the LCDs around the room. They were clearer and they were – it was easier for me to see. I could watch students watch what’s on the LCDs, whereas if I’m craning my neck around to watch what’s on the big screen, then – I’m kind of out of the picture, sort of. And the screen – if I remember right, I usually put the screen up and left it up during class because the screen gets in the way of the whiteboard on the front wall...”

Here the instructor pointed out his use of the LCD screens for projecting content also freed up the room’s large whiteboard, which would normally be obscured when the main projection screen was down and the ceiling-mounted projector was in use; with the projection screen in the down position, users are prevented from writing on the center portion of the board, which is the area that is most visible to students. As a result of using the LCD screens without the main projector, the instructor has access to another tool for delivering content or to supplement content already displayed around the room. The teaching assistant also commented on the usefulness of the LCD screens for showing online media clips from

YouTube, noting that students seated in groups near one of the five screens had a display for their own “private viewing.” My classroom observations revealed that the instructor used the large projection screen regularly with the LCD screens during the first half of the semester (projecting the same content on all the screens); however, his use of the main screen decreased significantly towards the end of the semester, and he instead relied primarily on the LCD screens when sharing content with the class. I also observed that when projecting content on the LCD monitors, the instructor and TA would venture away from the front of the class, out from behind the lectern; since they had five different display screens to read from or reference from different points in the room (versus the large, main projector at the front of the room), they could face the class as they delivered content, which improved their ability to make eye contact with students. When directly delivering content to the class using the LCD screens, both the instructor and TA typically stood or walked around in the front half of the room. Due to lighting issues in the space caused by the large windows (which were generally appreciated and valued by all the users of the space), bright overhead fluorescent lights, and an aging projector, both the instructor and the teaching assistant recognized the clarity and quality of the image on the LCD screens and saw this technology as a more effective tool for sharing information with the class.

To Assess Cognition

Once course content has been delivered, teachers typically employ a variety of techniques to assess students’ comprehension of course material in the classroom. When assessing cognition in the flexible classroom space, the instructor or TA posed questions or assigned tasks to the entire class that addressed the cognitive domain of Bloom’s Taxonomy,

such as the lower-order processes of remembering and understanding previously learned content, as well as the higher-order processes of application, analysis, synthesis, and evaluation.⁷

Instances where the instructor/TA sought to assess the cognition of the class were frequently related to students' ability to remember and comprehend material from assigned readings. For example, the instructor would pose questions to the entire class about the main idea or key points from an article, chapter, or the instructor's notes such as, "What is the larger point [the author] is trying to make?" and "When is it OK to use first person?" The instructor would also ask the class questions about concepts they might be familiar with in order to gauge their prior knowledge; these questions typically related to the meaning of disciplinary terms or concepts, such as, "What is genre?", "What do people consider the Humanities?", and "What is the difference between a hypothesis and a thesis?" Activities such as taking a quiz or writing a response from a prompt on assigned readings were also given to the class to assess lower-order levels of cognition. The instructor and TA assessed the higher order cognitive skills of the entire class through both in-class tasks and questioning. For example, the class was asked to analyze paragraphs from their own draft essays by color-coding them in Word and then explain how the parts of the paragraph functioned; and the TA assessed their ability to analyze by posing questions to the whole group about the meaning of symbols in a short story. The higher-order cognitive skill of

⁷ Krathwohl, D. R. (2002). A revision of Bloom's Taxonomy: An overview. *Theory into practice*, 41 (4), 212-218.

evaluation was assessed through activities where students were asked to review writing samples and comment in a whole-class discussion on the samples' strengths and weaknesses.

When posing questions to the entire class, the instructor and teaching assistant typically positioned themselves at or near the classroom front, occasionally walking from one side of the class to the other. I did not observe any instances where the instructor or teaching assistant stood or sat in a different part of the room (i.e. at the back of the room or along the walls) when they were attempting to assess the cognition of the class as a whole. Students established seating patterns and group table configurations during the first few weeks of the semester, and they typically sat in the same small groups around the periphery of the room, near one of the five wall-mounted LCD screens (see Figure 3.1). This configuration frequently left an open area in the center of the room in which the teachers could move into, out of, or stand. While the instructor and TA made efforts to assess the class's cognition throughout the semester, the entire class was not particularly participatory in whole-group discussions; participation in class discussions was either sparse, with the same few individuals contributing, or nonexistent. As a result, the instructor or TA's attempts to access cognition via direct questions posed to the entire class were often met with silence.

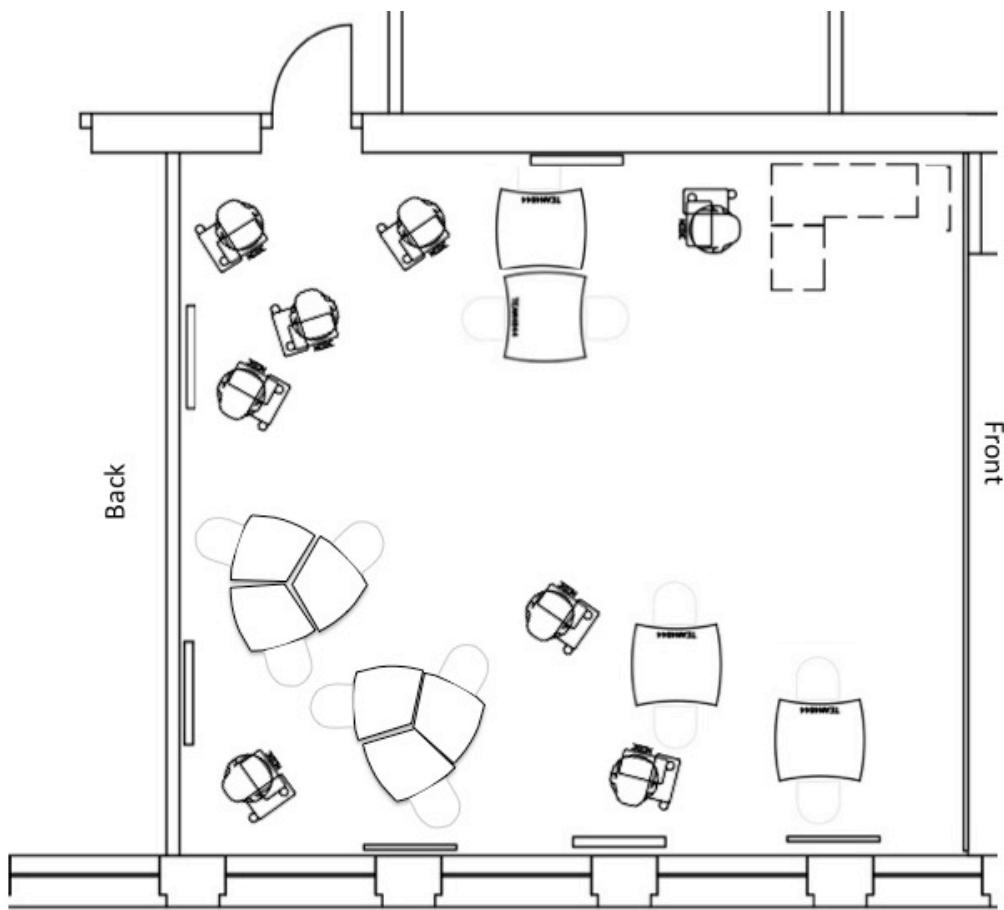


Figure 3.1: Typical layout with mobile furnishings situated around the perimeter of the room and near LCD screens.

Whiteboards were usually stored against the classroom walls when not in use.

For Cooperative Learning

Cooperative learning activities have become a mainstay in many composition classrooms due to the discipline's encouragement and endorsement of peer review workshops, where students both give and receive feedback on their writing (see Chapter 1). Cooperative learning, as was demonstrated in the flexible classroom, is defined as having students work in pairs or small groups to develop knowledge based on the course content or an assigned task, such as reading and commenting on the writing of their peers, responding to discussion questions from assigned readings, analyzing texts (chapters, articles, and various forms of digital media), or collecting data in groups. In his initial interview, the instructor reported that collaborative group work in the classroom was his "go-to" activity for engaging students and breaking the monotony of long class periods. The instructor revealed he relied on more cooperative learning due to the generally quiet personality of the group during class discussions. Their quiet nature was noted on several occasions by the instructor, TA, and the students themselves (see Chapter 4) during the interviews conducted for this study. In his first interview, the instructor recognized that the class seemed to be more comfortable and highly productive working in small groups; he characterized the group as a challenge to motivate to participate in whole-class discussions at his mid-semester interview. He attributed this lack of whole-class participation to social dynamics, particularly the small groups that ossified during the first few weeks of the semester and a few students who frequently dominated class discussions. However, he pointed out their ability and willingness to engage in other ways:

They will answer questions individually or in small groups that they won't answer as a class. And they'll talk in a more friendly manner individually, whereas they would just kind of stare when we're talking as a class. It's like they don't want to be engaged in the class, but it's not that they don't want to be engaged at all, I guess.

Students were asked to participate in various cooperative learning activities throughout the semester. The instructor and TA designed peer review sessions in small groups, where students were asked to give and receive feedback on their writing projects. They frequently structured these workshops with criteria and directions that were displayed to students on the LCD screens and main projector via the lectern computer or document camera. Students were usually allowed to choose their own peer review groups; peer review sessions typically involved students using their computers to email their drafts to their group members or share them in a Google document. The instructors would frequently encourage the students to move about the classroom and work in a spot where they felt most comfortable. After students had read the drafts of their group members, the instructors asked the groups to have a workshop "debrief," where members would discuss the comments they made on each draft with the writers, and they would also have the opportunity to ask questions about feedback they received.

Working in groups to answer discussion questions related to assigned readings was a cooperative activity that was assigned regularly. The instructors would usually ask students to pair up or work with several people they were sitting with/near to address the questions, which were commonly displayed on the instructor's computer and projected on the LCD

screens. On occasion the questions would be uploaded to the online course management system for students to access on their own computers and were not projected in the room. Students were usually given the option of either typing their responses to the questions (one student typed per group) on their laptops and then displaying their word-processed work on one of the LCD screens they were sitting near; or, they could handwrite their responses on one of the six double-sided mobile whiteboards provided in the room. As the semester progressed, I observed more activities like this, which appeared to take the place of whole-class discussions; both instructor and TA acknowledged that discussions involving the entire class were not very productive due to the group's reluctance to participate on a larger scale. As such, responding to assigned readings in groups became a relied-upon activity. For example, during one of my classroom observations the instructor told the TA that he asked students to work in groups to identify key concepts from an assigned chapter of their textbook in order to "get them talking."

In addition to having students answer questions about assigned readings, the instructor also used the space for cooperative learning via co-authoring. For example, the instructor asked students to engage in what he called "semi-public" writing, where they worked in small groups to author a paragraph supported by evidence; groups were asked to choose one member to hook up his/her laptop computer to one of the five LCD screens, choose a scribe, and then work together to compose their paragraph. The teacher reported that the lesson was designed with the LCD technology specifically in mind, and he noted that with this activity he hoped to create a composing space for students that was "semi-public, so

everybody can know what everybody else is working on a little bit, but it's still semi-private...so the group can sort of gather around their own space."

The instructor also reported that he made efforts throughout the semester to vary the number of people in cooperative groups (while the instructor did not usually assign people to specific groups, he would request students form particular group sizes, such as pairs or groups of three or four), and he revealed that, "some of that has been dictated by the furniture we have and the new LCDs we have, positioning them in front of those..." The five LCD monitors were commonly used when the instructor or TA asked students to watch a video (such as clips from YouTube) that was broadcasted from the main computer and then projected on the main screen and/or the LCD screens around the room, and then work in cooperative groups to respond to a prompt or task regarding the clip. For example, when teaching a multi-modal assignment on film analysis, the teaching assistant showed the class two music videos of the same song that was recorded by two different artists, and then asked them to analyze the videos based on a set criterion.

The instructor used the flexible classroom space for several cooperative learning activities which incorporated resources in the room and involved data collection outside the classroom. For example, in a lesson designed to expose students to the genre of field reports, the instructor and TA designed an activity where they asked students to pair up and observe a specific object or location around campus for 30 minutes. When students returned, they remained in their pairs, and were then asked to record their observations on the mobile whiteboards (some students also used the main whiteboard at the front of the class) based on

a set of criteria given by the instructor (“subject observed”, “methods”, “complications”, and “results”). Once each group had posted its findings, they were instructed to go around the room in the style of a poster session and review the whiteboards of other groups based on a set criteria (“Do you see a particular strength or weakness in this methodology?”, “What additional challenges or complications do you see in this observations/subject?”, and “What options for further study could this observation lead to? How would you need to change the study?”). The instructor supplied the students *Post-it Notes* for recording their comments and questions and asked them to stick these on the boards of their peers. The instructor later commented that he considered group activities, particularly this one, as the most successful of the semester, and he noted the classroom and the resources within it as being a key part of that success:

Interviewer: So do you think that that lesson would have been as successful in your memory had there not been more whiteboards in the space?

Instructor: No, because students don't – can't get up and move around in the same ways in another classroom. Even a classroom with lots of whiteboard space on the walls – I don't think you can use the rest of the space in the room as well.

To Check In

In this study, both the instructor and TA used the flexible classroom to check in with students during class time. When checking in, they approached students in the space as they worked individually or in their small groups or pairs to monitor their progress on an

assignment, review their work, answer specific questions, clarify content, or give advice or direction.

The instructor and TA regularly checked in with students when they were working in cooperative groups. Checking in varied from a quick stop by a group's table or workspace to a longer visit with the group for deeper discussions. For example, during a collaborative activity where groups were asked to analyze different sections of an article, the instructor did quick check-ins with each group to verify that they were working on their assigned parts. I observed both the instructor and the TA moving about the space during various cooperative learning activities to briefly touch base with students to manage class time ("Are you guys finishing up?") or to assist students with minor technical questions, such as where to find course materials online or the "comment" feature in Word.

In this class, checking in with students also served to clarify tasks and give direction. For example, when students began the "semi-public" writing activity (see *For Cooperative Learning* above), I observed one group that seemed confused about what they should be responding to and writing about. When the TA approached their table to check in, they took the opportunity to ask him for clarification on their task as a group. As he responded, the TA pulled up an empty rolling tablet arm chair and sat with the students at their group table; he sat with the students for several minutes giving them examples and explaining the directions for the semi-public writing assignment. The instructor would also stand by or sit with students in their groups on occasion to have deeper discussions about the content they were assigned to work on in groups. During one cooperative activity, students were assigned

discussion questions based on a scholarly article on the effect of climate change on a particular region in the Czech Republic. I was sitting with students Alison, Deirdre, and Meredith, who were working together, and Meredith expressed concerns about the task, noting that she felt they would not have enough time to complete the assignment. When the instructor came to their table to check in a few minutes later, the group shared these concerns and asked him specifics about the questions they were assigned. The instructor sat down with the group at their table (in the same chair I had vacated a few minutes prior) next to Deirdre and across from Alison and Meredith (see Figure 3.2). He addressed their questions, and then these questions led to a critical discussion of the article with the instructor. I observed that the instructor remained seated with this small group for about ten minutes during this discussion.



Figure 3.2: Instructor “checking in” with Alison, Deirdre, and Meredith

The instructor and TA would also use the space to check in with students to guide them on work they were producing independently. When Steve and Zack were working together to review interview questions they were assigned to write for a fieldwork activity, the instructor, who was walking around the room, heard their conversation and stopped by their table. The instructor stood next to their table and listened as Steve read his interview question to Zack; he then asked Steve how he might revise a particular question to get a richer response from his subject. The instructor spoke with Steve and Zack for several minutes, giving them specific advice on how they might word specific interview questions. In these instances both the instructor and TA demonstrated their comfort within the flexible classroom and their willingness to use it as an informal place to conference with students to address questions and concerns, and to make students think more critically about their work. My classroom observations align with the instructor's thoughts on touching base with students in the classroom, as he noted in his first interview that doing so is an important part of his teaching:

Interviewer: Why is [checking in with them] important to you?

Instructor: Well, because when students work in groups they only stay on task, for the most part, if they know that I'm involved with them. I'm not going to go cracking a whip or anything like that. But if I'm invested with what they're working on, then they'll be invested in what they're working on, I guess.

To Gather Affective Information

In addition to checking in with students to assess their progress, the instructors in this study used the flexible classroom space to also gather affective information from the class. When gathering affective information from students, the instructor and teaching assistant would ask the class questions or give them tasks that were designed to gauge their attitudes, feelings, thoughts, or opinions related to the course content or a class activity.

The instructor and teaching assistant would pose questions to the entire class to learn more about students personally or their previous learning experiences. When seeking affective information, the teachers would typically stand at the front of the room near the instructor's lectern, occasionally walking from one side of the room to the other, much like they did when assessing cognition. For example, before the class participated in their first peer review workshop, where they were asked to both give and receive feedback on a draft piece of writing, the instructor asked questions of the whole group to learn more about their previous experiences with this activity and their opinions about it. He stated to the class, "Let's talk about your own experience with peer review. Let's talk about the flaws. Is it perfect?" One student responded that peer review could be biased based on the reviewer's beliefs and background. Another student, who was initially hesitant to share, stated, "Well, I don't see people from my old English class here," and then discussed a negative experience he had with peer review in high school. Students were generally in their usual seats and sitting with their small groups that had ossified during the first half of the semester during these discussions. Gathering this affective information gave the instructors insight into

students' attitudes about the peer review process, while demonstrating the class's continued reluctance to participate on a larger scale in group discussions, as only two students offered responses despite the instructor's positive encouragement to join the conversation. The results of this affective questioning reflect what the instructor learned about the class through a related activity where students were asked about how they would like to discuss an assigned text. From the front of the room, the instructor asked the group, "What is the best way to have a discussion?" and then directed their attention to an online poll where he asked students to vote for their preferred method of having discussions in the classroom (choices included "work individually", "work in pairs", "work at tables [in small groups]" and "just have a discussion"). The majority of the class voted to first work in small groups to discuss the topic versus just having a whole class discussion. The bring-your-own-laptop (BYOL) requirement in this class made the real-time collection of this affective data possible; students using their own devices emphasized the flexible nature of the classroom and provided the instructor with helpful information that shaped his planning future lessons.

Affective information was also gathered to gauge student opinion about specific classroom activities and course content. After students had finished a peer workshop where they used Google Docs to share their work with group members for the first time, the teaching assistant asked the class how they felt about this method versus the other ways they had done peer review (such as emailing their documents to each other or exchanging hard copies and doing a blind review). Several students gave feedback in front of the group; Alison said she liked the ease of document sharing and viewing that Google Docs provided, while Olivia appreciated the anonymity of the blind review activity they had tried previously.

Similarly, after the semi-public writing activity (see *For Cooperative Learning* above), the instructor asked the whole class, “What were the challenges of writing together?”, which gave the instructor the opportunity to assess their feelings on co-authoring. By gathering this information, the instructor and TA learned more about their students’ attitudes about the different methods and tools used for peer review, which helped them make decisions on how they planned these activities and the use of the space for future lessons.

In addition to gathering data about their opinions on class activities, the instructors often asked the class questions after an assigned reading or class activity to gain more information about students’ reading or writing processes. For example, after students had been assigned a chapter or article, the instructor, positioned at the front of the room, would often open the class with a question to the entire group such as, “How did you read this introduction to [the textbook] *They Say I Say*?”. In response to this particular question, a few students shared information about their reading strategies for the assignment. Through this question, students were given an opportunity to share their thoughts on their own reading techniques, which in turn gave the instructor more insight into how they were approaching and handling academic texts. Questions were also posed to the group to obtain information on how they would approach their revisions after a peer review session. After the class’s first peer review workshop, the instructor asked them as a whole, “What will you do with these comments?” to learn more about how they felt about the feedback they received from their group members.

RESEARCH QUESTION 2: HOW DOES THE INSTRUCTOR/TA PERCEIVE THE FURNISHINGS, SPACE, AND TECHNOLOGY IN A FLEXIBLE CLASSROOM?

Gauging instructor and teaching assistant perceptions of the flexible classroom involved triangulating both interviews and my field notes. Based on the data, I determined that the instructor, and occasionally the TA, perceived the space as 1) A tool for engagement, 2) an obstacle to teaching, 3) an opportunity for distraction, and 4) an inspiration for reflection.

A Tool for Engagement

As discussed earlier in this chapter, the instructor noted that he would often rely on cooperative learning to encourage students to participate more actively during class. However, the data collected for this study also reflects that both the instructor and the TA developed a strong perception of the flexible classroom as a useful tool for engaging students through cooperative learning activities. As it relates to this study, the space as *a tool for engagement* is defined by the perception that the classroom and its associated resources (such as the movable furniture, LCD screens, and whiteboards) are tools that can be used to encourage students to participate in class activities, interact with their peers, interact with the instructor, and hold their attention.

During his interviews throughout the semester, the instructor commented on how the resources in the room were devices that were helpful in encouraging students to engage with each other during class. When asked about his thoughts on the classroom's effect on peer workshops, the instructor reported that the new layout was a marked improvement over the fixed tables (such as the pod configurations that existed in the classroom during the pilot

laptop study and several weeks into the semester of this study). He described the room before its redesign as “locked into four stations” (see Figure 2.1), which was difficult to work with when he assigned cooperative learning lessons:

- Instructor: ...but four stations of five to six students is just terrible, you know this.
- Interviewer: In what way?
- Instructor: Because working in groups of two or three – [students] are just always setting up in an awkward way. I use to have groups of three who would sit in a row where the people on two ends don’t see each other. They won’t move unless I tell them to move, and that’s not always the best way to make that happen. But the smaller furniture – I mean, they’ll all take one of those square tables and they’ll sit around there...sometimes they’ll take one or two of the little triangular ones and one of the other rolling chairs and just make a little group, or even pairs. Sometimes they’ll take one of the rolling [tablet-arm] chairs and just move wherever the other person is, and they’ll be able to face each other.

Although I did not observe any instances where the instructor specifically directed the students to move the furniture to accommodate a particular lesson, and students did not move the furniture into configurations that unsettled the seating patterns they established early in the semester, the instructor still perceived the mobile furniture as a tool that helped students connect with each other in more meaningful ways during collaborative activities. The instructor specifically noted that the fixed pod configuration did not easily allow students to make eye contact and talk to each other. When asked if he thought the new furnishings were having an effect on how students were working together, he responded:

I hope it is. I guess I don’t really have any way of knowing that, but my assumption is that it is...sometimes if it’s a group of three or a group of four – sometimes most of

the group is able to easily face one another and then you have one person who can't really – who's the odd man out. And I don't think that happens.

Here the instructor reiterates his experience that the previous layout of the space, with four fixed stations each seating six students, was not the most conducive to group interaction; he observed that often one person, based on the seating design, would be on the periphery, isolated from the rest of the group. With the addition of the new furnishings, his comments demonstrate a clear perception that the ability to configure the furniture so that students can face each other promotes more interactivity and engagement between individuals within the group.

As noted earlier in this chapter, the instructor had a preference for the LCD screens when delivering course content to the class due to image quality and convenient sightlines; interestingly, the quality and easy visibility of the LCD screens were also perceived as tools for student engagement in the classroom by the instructors. With five screens installed throughout the room, students had multiple sightlines to view displayed content. The instructor pointed out that students could configure the furniture in various ways and then gather around an LCD screen for an activity, which was a significant enhancement over the previous room design. He argued:

it's hard for a bunch of students to cluster around a laptop. And even if they physically can do it, oftentimes they're unwilling to do that. But if the room is more conducive to students gathering around at a central point and looking at what somebody is working on, it just works better.

He stated, “With the screens, there’s no reason for anybody not to be engaged.” The instructor also perceived that having students use the LCD screens to display their work during cooperative activities could be a positive influence on other groups working nearby:

The other thing is that students in groups can see what other groups are working on a little bit, and I think that’s great. If there’s one group where nobody in the group really understood what the directions were, and they don’t really know what’s going on, [then] they can kind of look around and catch up...They look next door and say, ‘Oh, now we see what’s going on.’

The instructor perceived the “semi-public” nature of the LCD screens as a tool that can empower students to problem solve as a group by looking to their classmates; as a result, engagement with each other and with the course material can increase. Similarly, the instructor also perceived students as more engaged when watching videos and other multimedia projected on the LCD screens due to their convenient placement in the room:

I think their ability to kind of watch these sorts of things in a way that’s active – where they’re really paying attention – as opposed to just being on the front screen where it’s a little more blurry and a little bit further away, and they have to kind of crane their necks. And I think they’ll watch for a little while, and then before long half of them are disinterested and doing other things.

Students' proximity to the display screens and the ease with which they were able to adjust to see one of the monitors was perceived by the teacher as having an effect on their ability to engage with the course content.

In addition to the LCD screens, the mobile whiteboards were also considered an engagement tool that encouraged students to be more active and mobile in the classroom. Both teachers expressed a strong fondness for the mobile whiteboards, which was unexpected by the design team and the instructors alike. The whiteboards were thought of as more flexible than the LCD monitors, and this flexibility gave the instructors additional options when planning lessons. While the LCD screens were in fixed locations, the whiteboards had the luxury of movement in the space:

If you have students working on short presentations that you want to have them deliver in class, you can have them roll them right to the front of the room and now they are sort of up on a stage, so they can work on them in their more secluded place, but they can then bring out what they've worked on. There are so many good things about those. [Students] can't get buried in their laptops...the whiteboards sort of force them to just move a little bit away from the space where they're comfortable, and they kind of come out and engage in their groups a little better. There's so many things we can do with them that I wouldn't have even thought would have mattered.

As evidenced here, different activities with various parts could be assigned using the mobile whiteboards. The instructors recognized the benefit of having the boards on casters, as they could be used for a variety of purposes even within one activity such as an invention space, a

revision space, a visual aid for in-class presentations, and even a partition screen for those wanting more privacy during their group work, all of which were noted during my observations. The instructor noted that when using a whiteboard as a screen (see Figure 3.3), students could have enough privacy to feel comfortable working in the space, but they were not so secluded that he was not able to check in with them to monitor their progress. He added, “it’s okay with me if they form their own little group with a little separation when they’re working, and sometimes they do better work that way.”



Figure 3.3: Mobile whiteboards used for recording ideas and as a partition.

Standing up and moving about the classroom to use the boards was also perceived as an advantage. The instructor made particular note of the benefits of students using the whiteboards because their physical movement often required them to detach from their laptop computers and connect with other members of their group for collaboration:

Instructor: Sometimes computers can be so, I don't know – insular. Is that a fair word? It allows them to retreat into their own little world too much. Whereas once they're working on the whiteboard, there's more of a community, I guess.

Interviewer: So you see them interacting more with each other when they are utilizing that medium?

Instructor: Yes, because it forces them away from their tables, and it forces them to push things around a little bit...

The teachers also believed that students were engaging more with the course material when using the mobile whiteboards. In several of the lessons he taught, the TA assigned group whiteboard presentations, where small groups shared their whiteboard with the whole class at the end of the period (Figure 3.4).



Figure 3.4: Student mobile whiteboard presentation

The TA noted that with a whiteboard presentation, students were asked to stand up and “assert their own authority in the classroom,” which encouraged deeper engagement with the content since students were accountable to their peers. Students were usually given a choice of recording their work on a whiteboard or hooking up their computers to an LCD screen and typing their work for a given activity. Both the instructor and the teaching assistant recognized that the majority of the groups chose to use the whiteboards, and the instructor felt that this format could be more productive for some students:

And they do so much more with the whiteboards. They put more information on them. I would've thought the opposite. Some of them – they fill that whiteboard with information... Whereas I didn't see that happening as much on the LCDs, I don't think.

The instructor commented in his first interview that one of his standard teaching practices is to modify his lesson plan to incorporate collaborative work if students did not appear to be engaged in class discussions. I observed instances of this practice when the instructor posed a question to the class and got few or no responses. For example, early in the semester the instructor taught a lesson on the concept of “genre,” and he opened with the question, “What is genre?” When no one offered an answer, he asked the class to research “genre” on their laptops and then discuss what they learned with the people sitting at their

tables.⁸ In a later interview, the instructor commented that this kind of teaching “on the fly” was easier due to the flexible design of the space. He stated:

[The classroom] gives me the flexibility to change things up on a fly, which I do a lot...I don’t wait too long before I break them up in small groups or something like that and just kind of make it up on the fly...So, the furniture definitely let’s me do that for sure.

The instructor said that over the course of the semester he came to class each day with the expectation that he might need to alter his lesson if the students were not participating as a whole class. He noted that in other classrooms he would most likely take the same approach for students who were not particularly participatory, but he pointed out, “I know I can break the room up in different ways now, so that’s good.” In other words, the flexible design of the classroom made teaching “on the fly” easier.

An Obstacle to Teaching

While the data suggested that the flexible classroom and its resources could be used as a device for engaging students more actively in their first-year composition course, a pattern was also identified that suggested the space could be an obstacle to teaching for the instructors. For this study, *an obstacle to teaching* is defined as the instructor and TA’s perception of the space or its associated resources (such as furniture, whiteboards, and LCD screens) as a barrier to their teaching and general comfort, making navigation within the

⁸ This lesson was taught during the first few weeks of the semester when the classroom was still outfitted with fixed pod tables that seated six students each.

room and the execution of particular activities complicated or more difficult than in classrooms with different layouts or designs.

The instructor considered his ability to move freely about the classroom as an important part of his teaching. As such, when the instructor felt he could not easily navigate the classroom space to interact with students, he perceived the space as an obstacle to his teaching. When asked about how he would characterize the ease with which he could navigate the classroom, he responded, “It depends how the furniture is set up.” It was decided collectively by all the instructors who taught in the flexible classroom during this first semester, as well as the program director, that there would be no set floor plan for the classroom, other than moving furnishings and whiteboards away from the classroom entrance and clearing the main path to the instructor lectern before the next class began. In other words, the furniture could be left where it was from one class to the next, so that instructors could observe how often and to what extent students chose to move the furnishings on their own. Since there was no established rule for where the furniture should live from class to class, the arrangement of the flexible classroom looked different for most of the classes I observed, and it never reflected the original floor plan that the design team created (see Figure 2.1). The instructor described the unpredictable day-to-day layout of the space as having an “element of chaos” which could be difficult to deal with on a daily basis. For example, during one classroom observation, the previous class and instructor arranged the tables down the center of the space, akin to a boardroom where students faced each other across the tables (Figure 3.5).

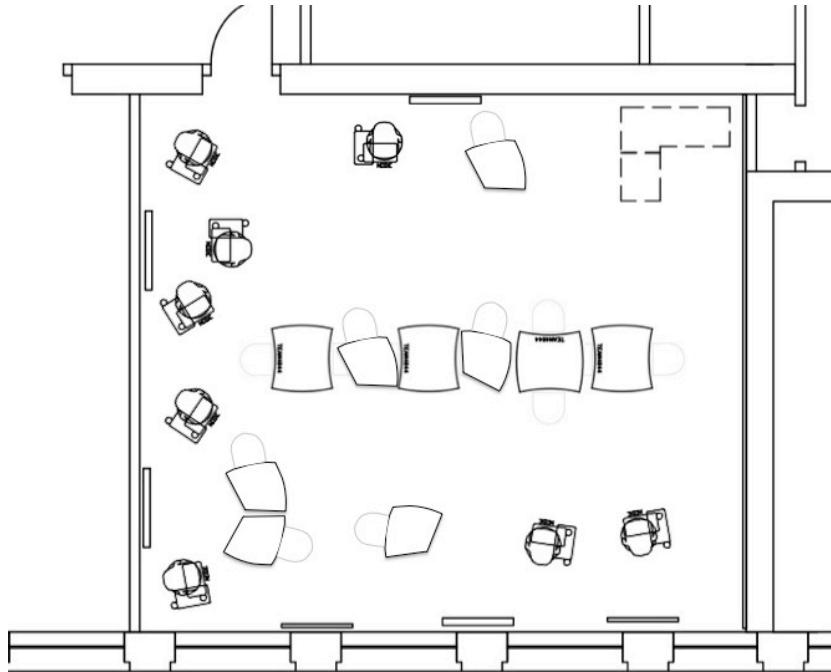


Figure 3.5: Boardroom-style layout arranged by the previous instructor, before the instructor invited students to move furnishings.

When he arrived, the instructor began the class and did not ask students to move the furniture into another configuration. After assigning a cooperative activity where students were asked to review an assigned reading, he invited the class to move the furniture around the space for their group work. Several pairs of students moved tables away from the center to the periphery (Figure 3.6), and they stayed in these spots as they worked on two cooperative activities and then read a sample paper silently as a class. During their reading (about an hour into the class) the instructor stated to the TA, “I’m definitely going to move this furniture around for the next class. I don’t know where to stand.” With this statement, he demonstrated his discomfort with the current configuration, noting that he did not know where to position himself in the classroom to best facilitate the activity he assigned.

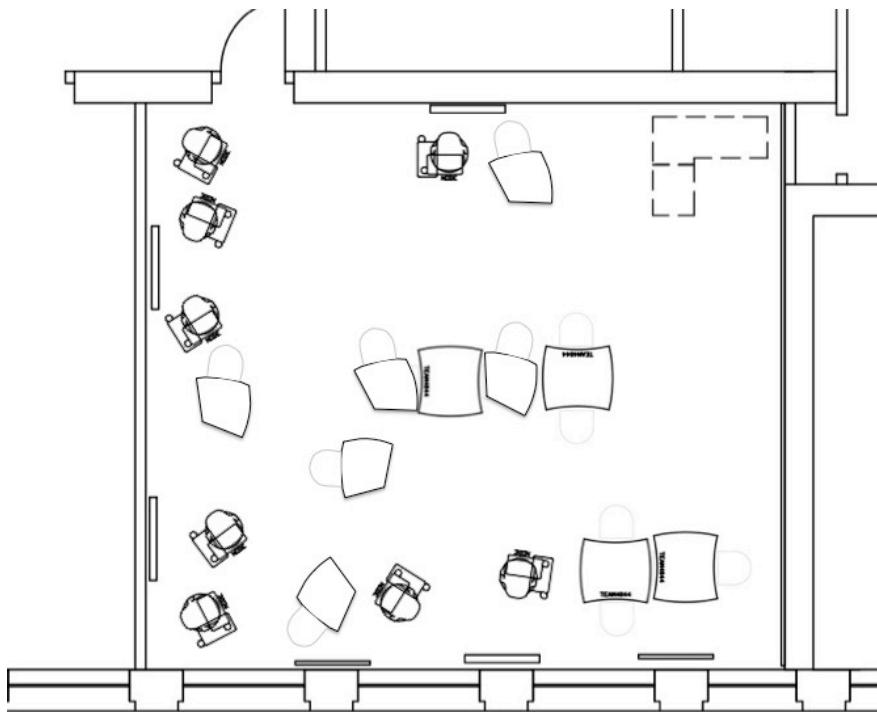


Figure 3.6: Classroom layout after instructor invited students to move the furnishings.

In his third interview, the instructor discussed his sense of confusion about how and where to move within the classroom. He reported that having several different types of furniture in the space that did not fit together cohesively contributed to his feeling of being crowded; and at times he perceived this crowding as a barrier to his teaching. Due to the mobility and size of some of the furnishings, particularly the self-contained tablet-arm chairs, he remarked, “there are times when you’re kind of losing students in the corner [of the room] a little bit.” He added, “students can really scoot those into positions that make it hard to get the kind of interaction that I want sometimes.” My field observations align with the instructor’s perception in that the furniture seemed to “bunch up” towards the back of the room and near the classroom entrance at times; while there was usually plenty of space for

tables and chairs at the front of the classroom, near LCD screen #1 and the instructor's lectern, few students chose to sit or work in this area of the room (see Chapter 4). The instructor noted that placement of the larger tables in the room would sometimes create "little alleys and corners" that were difficult to find a way around when students were in their groups for a cooperative learning activity. He reported, "I can't stand where I want to stand, so I can help them with something or listen in," and he ended up in some situations where he was "tripping over them" as he moved from one group to the next. In these instances, he perceived the furniture placement as an obstacle to his ability to check in with some students and monitor their progress.

While the mobile whiteboards were widely perceived as tools for engaging students, there were times during my observations that they appeared to be obstacles in the classroom. During the same class where students sat in the boardroom configuration, they were asked to work in groups and record their responses to discussion questions on the mobile whiteboards. Most of the students moved only slightly from this boardroom set up (by pushing their chairs out from the tables and working to the side) if at all. When the instructor asked them to share their whiteboards with the entire class at the end of the activity, I observed that multiple sightlines – to both the teacher and the rest of the groups – around the room were obscured from various points in the room based on where the whiteboards were situated. When sharing their group work, the students did not move the boards, and the instructor did not ask them to even though he moved several times to the right and front of the room in an attempt to see each group as they reported their work. Later in the class when students were reading independently in the next activity, he moved some of the boards from the center of the space

to the periphery. However, in a similar cooperative activity a few weeks later, the instructor asked the class, “Can I move a few of these boards out of the way so I can see everyone?” When they agreed, he rolled several of the boards out of his sightlines and to the sides of the classroom. This observation data suggests that the instructor became more comfortable with moving the whiteboards out of his sightlines (and often the sightlines of other students) after he learned that students did not seem to mind, and he did so with greater frequency. Data collected from the instructor’s second interview align with these observations, as the instructor noted that the whiteboards can “create problems sightline-wise, but I’d say they’re easily resolvable problems...all I need to do is reach over and pull it to the side a little bit and we’re talking as a class again. So, they’re ideal.” The teaching assistant also noted this minor drawback to the boards to me during one classroom observation: “I can’t see the rest of the class when we’re using the boards. But it’s not really a problem – people will flag me down.” While both instructors noticed that the whiteboards could obscure their view of students as they worked in small groups, they perceived these obstacles as negligible when contrasted with their versatility and usefulness. Similarly, despite the instructor’s unease with the disorganized nature of the flexible classroom during group work, he stated in his third interview that the “chaotic” nature of the space did not at all prevent him from teaching: “I don’t need it to be perfectly orderly...it’s not like it made it impossible for me to teach in there or anything like that.” He added, “And there are nights when I wished that there was a little bit more order in the classroom, but overall I’d say it’s definitely a positive experience.”

The teaching assistant also expressed that his experience in the flexible space was largely positive; however, he did suggest that the large lectern at the front of the room was an

obstacle to creating a more student-centered environment, which he characterized as a “walled-fortress.” The TA stated that having a tablet computer or some other device to remotely control the instructor’s station (which included a computer, document camera, and the controls for all the projection equipment, including the LCD screens), would have given him the opportunity to be out in the classroom and “on the same level as the students,” instead of being tied to the lectern when he needed to deliver content. He perceived the lectern as a barrier to the active, de-centered teaching he preferred to practice.

Interestingly, although there were times when the instructor noted he had difficulty moving about the classroom, I did not observe an instance when he requested that the groups move the furniture to other parts of the room or into different configurations. When asked about why he chose not to do so, he responded:

Students can be a little possessive about the furniture they’re sitting in and how they’ve arranged it, and you’re almost kind of getting into their space a little bit. And sometimes it’s not worth pushing that issue. Sometimes they’re already engaged in an activity, and you see they’ve arranged things in such a way that’s not really conducive to what I want to happen in the classroom. Maybe because I can’t see what they’re doing or I can’t physically walk between groups or something like that. But asking them to stop and change and move things around is just too much trouble in the middle of the class. And I think that’s because there were just so many different types of furniture and configurations in that room.

Here the instructor demonstrates an awareness of and sensitivity to his students' comfort levels with how they chose to position themselves in the classroom, and an awareness that asking them to move outside those comfort zones might affect their engagement and productivity within their groups. However, he acknowledged that having students occasionally change their positions in the classroom, "to change things up a little...could only be a good thing."

An Opportunity for Distraction

While the instructor sometimes considered the flexible classroom as an obstacle to his own teaching, he recognized that aspects of the space could also be a distraction for some students. The space was perceived as an *opportunity for distraction* when the room or its resources (such as the movable furniture, whiteboards, and LCD screens) distracted students to the extent that they were off task, which could cause them to pay less attention to the instructor and their peers during group work. Unlike the instructor, the data collected from and related to the TA demonstrated that the TA did not perceive the flexible classroom as a potential distraction for students.

The instructor attributed some of these distractions to the students' own devices, such as their laptop computers and cell phones. As discussed in earlier chapters, students were required to bring their own laptop computers for this course, as the program worked towards phasing out their computer lab rooms that had fixed furnishings and aging technology. The instructor had taught classes over the last few years in this "bring-your-own-laptop" format,

and he made particular note during his second interview that he perceived these devices as drawing students' attention away from the activities taking place in the flexible classroom:

I've noticed in the last couple of semesters that the technology has become more of a distraction. And that certainly happened as the semester [has] gone on in here...It's almost like the technology has gotten more seamless, even more accessible, that they're more apt to be distracted.

The data collected during my class observations reinforce this idea. For example, when introducing a peer review activity where students were asked to review hard copies of their group members' work, he asked the class to first close their laptop screens so that "there's nothing to distract us." He reported that students in the two other classes he taught reconfigured the furnishings more than the class I observed for this study: "As soon as they knew they were allowed to do that, they did it all the time." For these later classes, he perceived the furniture as a tool some students used, in conjunction with their own digital devices, which contributed to their being off task:

Some of my students take that as an opportunity to move the furniture in ways where they can sort of get away with things they know they're not supposed to do, like sit in a corner and [use] Facebook and chat and all that kind of stuff. So that's a little frustrating sometimes.

In an effort to avoid being "an overbearing authority," the instructor acknowledged he did not ask students to move themselves or the furniture even though some configurations they

chose made interacting with them a challenge. He stated, “I kind of let them do what they are doing and work with it.”

The instructor reported that the ways some students used the mobile whiteboards could also sidetrack them from engaging with their group members during cooperative learning activities. In his mid-semester interview, he acknowledged that a few students in another class would “play” with the boards by drawing pictures on them that were unrelated to the assigned task; as such, they were “absently unengaged from their group.” Data from a classroom observation supports this point when the instructor told the TA that he did not like to hand out dry erase markers to the groups too soon into an activity “because they will end up playing with the boards.” While “playing” with the whiteboards might have occurred in his later classes, I did not observe any instances of this kind of behavior from the students in the section observed for this study. Interestingly, when asked about his perception of the whiteboards being used for play by some students during his final interview, the instructor commented that he did not perceive students drawing or “playing” on the boards as an issue. He stated, “I never felt that was a big distraction. Nowhere near the kind of distraction like when students [use] Facebook and all that kind of stuff they’re doing on their own machines.” In fact, the instructor believed that having the ability to play by drawing on the boards was helpful to some students in one of his other classes. He described a few of these students as friendly and talkative, but also as struggling writers who were taking the class for the second time. As such, the instructor saw the whiteboards as a tool that could capture their interest. He also came to see that the other resources in the space could give him an

opportunity to reach students, and when used effectively, they did more than just divert student attention:

I don't know if any of this would be unexpected, but I learned that some students liked to play with all the toys, and sometimes it's a good thing and sometimes it's not – but more often [it is a] good thing than not; that certainly you can use the newer things in the classroom to get students interested and involved.

Statements made during this last interview demonstrate an evolution in his perceptions regarding what constitutes distractions in the classroom; in other words, the resources in the classroom, such as the mobile whiteboards, could offer a productive distraction for some students.

While the instructor developed a perception that certain aspects of the room presented an opportunity for distraction for students, he also expressed awareness that other aspects of the class, including the social dynamics in the group, as well as his own teaching, could also play a role in his students' ability or willingness to pay attention:

It also might have more to do with the class. If I haven't done what I need to do to keep the class engaged, then they're more apt to distract themselves...So I don't know. Again, it's like everything else – there are always contributing factors.

Here we see the instructor's awareness that the flexible classroom space and the resources within it (such as technology and furniture) are not the sole cause of students being distracted; class dynamics, student personality and preference, and the instructor's comfort

level and pedagogical approaches are all factors that can play a part in disturbing student attention.

An Inspiration for Reflection

Data collected from this study also suggests that the instructor, and to a lesser extent, the teaching assistant, perceived the flexible classroom as a space that inspired reflection. For this study, units identified as an *inspiration for reflection* involved instructor comments that suggested his experience teaching in the flexible classroom, and using the resources within it, encouraged more critical and reflective thinking about his current and future teaching practices.

The instructor perceived the flexible classroom as a space that inspired him to think about his teaching practices throughout the semester. He remarked that his favorite aspect of teaching in the classroom was that the space itself promoted him to reflect on his own teaching and encouraged him to try new approaches:

I don't know that a lot of the things I did this semester necessarily worked, but I felt like if this was what we're doing going forward that there are a lot of opportunities for me to make things work...So I guess my favorite thing was being able to think about ways to improve my class, improve my lessons, change things up a bit, and show [the room] off a little, too.

Several instances were noted where he commented that after teaching the class, he would reflect on how he might improve a particular cooperative learning activity. For example, he

discussed different ways he might configure the furniture to encourage more productive group work. He stated, “One of the things I’m kind of interested in is thinking about how that horseshoe [configuration] was one way to get them to be able to work in different size groups but still face each other more of the time.” The instructor had tried this layout in one of his later classes, and he mentioned this in an interview and during a classroom observation that he thought about trying this layout in the class observed for this study. The TA also reflected on his experience; in his interview he revealed that if he had the chance to teach in the flexible classroom again, “there would definitely be more getting up and walking around” for students. He also pointed out that he would have groups give presentations at the LCD screens around the room to try to de-center the space further and draw students’ attention more towards their peers instead of the instructor.

The instructor also recognized that he did not think he always used the classroom as effectively as he could have. In his third interview (conducted at the end of the semester) he indicated he was surprised he did not modify his lessons more to capitalize on the resources in the room:

when I’m finished teaching for the day...I think, ‘Oh, I should have done it this way. I should’ve used the LCD screens and had them do this’...or, ‘Oh, if I had done that lesson with the dry erase boards that would have been better.’ So I think a lot about that after the fact.

As the semester ended, his reflective practice became more focused, and he discussed specific ways he could better employ the resources in the space. For example, in his last

interview he made specific reference to how he could have students use the LCD screens in a more active way if he taught in the space again:

What I would like to do more of is have students working on revision activities on the screens, where we can all kind of see it, rather than just composing a paragraph or something like that in answer to a question – maybe revising a paper or commenting on a paper...I'd love to do more of that...If I were planning a class for next semester where I knew I'd have this technology, that's the kind of stuff I'd do a lot more.

Based on this comment, we see that his initial teaching experience in the flexible classroom inspired him to consider ways he could use the LCD screens for more interactive peer review. His reflective practice challenged him to think more critically about active learning processes for his composition students, such as having them work together to review and/or revise a paper. He believed students composed differently when using the LCD screens and that there might be benefits to assigning revision activities that utilized this technology.

The instructor was careful to make the point that a significant factor to remember is that while the flexible classroom can support student engagement and cooperative teaching strategies, it is the pedagogical choices he made in the space that could make a difference in teaching and learning:

it's still just a classroom, you know what I mean? It's not like the classroom teaches itself...it's not that we really do things for the most part in this classroom that you can't in other rooms. A lot of the times you can just do them more easily in this

room. I mean, you can still get students to work in groups and be engaged, and you can still force furniture around a little bit in other rooms. You can do a little bit more right away in this room. There's a lot of things you can still do. You can just do it more – do it better in this room, I think, more easily. And to me – for me, at least with my teaching style – sort of being able to adjust things while they're happening is – that's where this room really kind of works...

In this reflective statement, we see the instructor's acknowledgement that the classroom alone is not the sole determinant of a lesson's success; however, the space can enable the kinds of teaching he prefers to practice.

A particularly interesting result of this study is that the instructor spoke specifically about how the lessons he learned from teaching in the flexible classroom could be transferred back into more traditional classroom spaces. In his last interview, which was conducted shortly before the next semester started, the instructor talked about how he could apply some of the teaching techniques he practiced in the flexible classroom to the room he would be teaching in for the upcoming semester. The instructor described the room he would soon be teaching in as having four narrow tables that seated five or six students each; he had taught in this room previously, and he noted that the tables were difficult to move around due to their size, and the smaller square footage of the room made grouping students for collaborative work a challenge. The space had an instructor's lectern and large whiteboards on both the front and back walls, but no mobile whiteboards or LCD screens. While he did not have the same access to resources in this room as he did in the flexible room, he spoke about how his

experience in the pilot room was influencing his ideas for teaching in this more traditional space:

So one thing I've learned in [the flexible classroom] is that you can get students to arrange themselves in ways that are conducive to group work, where they can all see what's going on and talk to one another...I'll have to find ways to do that in the other room, and I don't know how that'll work...But I could certainly see the value in how people work better together in a better space, so I'll be thinking a lot about finding ways to overcome the limitations of [the other room] when I'm in there next semester.

The instructor acknowledged in his second interview that lack of time was a significant factor in how well he believed he utilized the resources in the space, as he ideally wanted to arrive to class early to arrange the furniture to support a specific activity he had planned. He also noted in this last interview that given the opportunity to teach in the flexible classroom again, he would spend more time planning lessons around the material affordances in the space to use them more effectively. However, we see that his experience has inspired him to think about how he might use low-tech resources in the program's other classrooms to engage students. For example, his use of the mobile whiteboards in cooperative learning activities in the flexible classroom stimulated ideas about how he might use the large, fixed whiteboards in the room he would be teaching in for the next semester:

this upcoming semester I'll be in a room that has whiteboard space on the walls, but as far as I know, there won't be any mobile whiteboards. So I've been thinking about

how I can used what I learned...having mobile whiteboards obviously inspired me...And what I found is that when students compose on those, they seem to be much more active than if they're only composing on their laptops or on paper within a group situation or something like that. So, next semester, in a more traditional classroom...I'll find ways to use what's in that classroom better, I think.

Here the data suggest that his experience in the flexible classroom has not only made him think about how to use existing, low-tech resources in more effective ways, it has also convinced him that successful cooperative learning can be achieved in these spaces when given critical thought and planning.

CHAPTER 4: RESULTS: STUDENT USES AND PERCEPTIONS OF THE FLEXIBLE CLASSROOM SPACE

In this chapter I discuss the findings from the data collected from my classroom observations and interviews with students in one section of the university's first-year writing course. Data collected for this portion of the study was guided by research questions three and four: 3) How do the students utilize the furnishings, space, and technology in a flexible classroom? and 4) How do the students perceive the furnishings, space, and technology in a flexible classroom? Operational definitions are given for each of the categories identified for both research questions, and examples are described from the data that support each category. The data suggest that the students used the flexible classroom for several purposes, including those specifically related to their learning, and their social and physical comfort. The findings also reveal that students perceived the space as having largely positive qualities that aided in learning and communication, as well as giving them opportunities to control their environment.

RESEARCH QUESTION #3: HOW DO STUDENTS UTILIZE THE FURNISHINGS, SPACE, AND TECHNOLOGY IN A FLEXIBLE CLASSROOM?

The results from the analysis of the data gathered to address RQ3 reveal that students utilized the flexible classroom space for six general functions: 1) to receive course content, 2) to accomplish a task, 3) to manage physical comfort, 4) to maintain social groups and personal territory, 5) to cooperate in small groups, and 6) to engage with the entire class. Units coded for the data related to RQ3 were limited to functions and purposes that were

student directed, versus the students' use of the space based upon the instructor's directions or requests.

To Receive Course Content

The students used the space and the resources within it in various ways to receive content from their instructor and teaching assistant. When receiving course content delivered by the instructors, students demonstrated and/or discussed the choices they made regarding where to look in the room or how they chose to sit or physically position themselves to most effectively take in course-related information.

Data collected from my field observations as well as from student interviews suggested that some students demonstrated a preference for viewing the LCD screens over the large main projector when receiving course materials from the instructor or TA. Several students commented that this preference was driven by the quality of the image that was displayed by the main projector. For example, students noted that they would switch from viewing the main projector to one of the five LCD screens if the room was not dark enough to make the image clearly visible, or if the image was blurry or there was a glare on the main screen. When asked about how she chose to follow along with the instructor when he was projecting course content, Laura stated, "sometimes I switch back and forth – sometimes an image will look better on the bigger [projection screen], and sometimes the image will look better on the little ones." Olivia also stated that she would switch between these two displays; however, she pointed out that she first looked at the main projector out of habit: "I think

initially I look at the projection screen, and then I remember that there's an LCD monitor closer to me..."

Students also noted that their choices of where to look to receive information were frequently based on where they were physically situated in the room. Brad, who preferred the LCD screens due to their clearer picture, noted that he would choose to view a particular LCD screen based on "whichever one is easiest [to see] from my angle." Similarly, Matt commented that he had no problem seeing any of the displayed content since there were several LCD screens within his sightlines; he pointed out that he could sit in his preferred area of the room (towards the back) because screen visibility was not an issue like it was for him in his large lecture classes, where there was one main projector and screen only. These student comments align with my classroom observations, as I observed that most students usually watched the LCD screens that were closest to them and were in their most convenient sightlines. However, if students were seated too close to an LCD screen, I observed that they would follow their sightlines and view a screen that fell in that path. As a participant observer in the space, I found myself doing this as well. For example, when seated either too close or with my back to the LCD that was nearest me, I needed only switch my gaze to another screen on an adjacent wall. For me, this switch-up happened easily and usually involved little to no movement of my seat due to the eye-level placement of the monitors around the room. Deirdre described a similar experience when she was watching a video in class and she felt she was sitting too close to one of the LCD screens to see the content clearly:

Deirdre: I don't know if it was the resolution, but I was just too close...I was like, 'Oh, I can't look at this.'

Interviewer: Did you have room to move back, or did you look at a different screen?

Deirdre: Yeah, I just looked at this one over here.

In addition to viewing wall-mounted displays, I also observed students on several occasions viewing course-related content on their own laptop screens even though content was also being projected on the main screen, the LCD monitors, or both. Viewing this material was limited to content that had been made available to students by the instructor through the online course management system. For example, when the instructor displayed a sample essay for students to read on the LCD screens, most of the class chose to view and read the paper on their own computers, which they could access via a link provided by the instructor on the course website. When viewing multimedia displayed by the instructor such as YouTube clips, however, students chose to watch the content on an LCD screen.

To Accomplish a Task

Over the course of the semester, students were asked by the instructor and TA to participate in a variety of activities and complete numerous tasks that did not require a specific use of the space. When accomplishing a task in the flexible classroom, students, working individually or in groups, demonstrated or discussed the choices they made about how they used the space or specific tools (such as the mobile whiteboards or the LCD screens) in the room to complete academic tasks assigned by the instructor or TA.

When assigning group activities, the instructor or TA would frequently give students a choice regarding the resources they could use in the classroom to complete a task. During my classroom observations, I observed students making choices and using the mobile whiteboards, LCD screens, mobile furnishings, and their own laptop computers. Students noted (both during classroom observations and in their personal interviews) their preference for a particular tool often depended on the kind of task they were asked to do, as well as convenience. For example, when asked about her preference for using either the mobile whiteboards or hooking her laptop up to an LCD screen, Alison noted that her choice was guided by the task she had been assigned: “Usually I’d use the whiteboards. But if it’s something where we have to write a lot, then I’d rather type it...But if it’s just simple, like quick stuff, like bullet points, I can use the whiteboards.” Similarly, Doug also commented during his interview that he preferred to use the whiteboard for tasks that required listing and bulleting, as he had trouble formatting the bullets and spacing in Word on his own laptop computer. Steve also noted his preference was dependent on the level of formality that the assignment called for, as well as how much he was asked to write:

Well, if it’s kind of writing things where there’s going to be different ideas bouncing around, I really prefer the whiteboard because it’s kind of like right there, you can erase it. And it’s a lot more flexible. If it’s something that’s a little bit more like, ‘give me two paragraphs on this,’ then the LCD would be much better because I think that it does better with a more refined product.

My field observations support the thoughts expressed by Alison and Steve regarding students' use of the LCD screens to project work they authored or co-authored on their own laptop computers. During one observation where students worked in small groups to co-author a paragraph response to a writing prompt, I spoke to the members of one group and learned that they considered the co-authoring process easier with the LCD screens because they could share ideas and then they could each see what their appointed typist was writing. Having one group member connect her laptop to the LCD screen also gave them added flexibility in that the other group members used their own laptops to view the electronic article (which was posted on the course's website) on which the writing prompt was based.

While some students reported a preference for using the LCD screens to project the work required for accomplishing a task, other students demonstrated some discomfort when using this tool. For example, during the same classroom observation where small groups were asked to co-author, I observed one group where their typist did not connect his laptop to the LCD screen the group was sitting near. After several minutes of group work, he connected his laptop and displayed their finished paragraph. When the TA inquired with the group about why they had not connected a laptop to the LCD screen during their drafting process, one group member replied that they did not want to display their paragraph until it had been finished. Comments made by Deirdre in her interview shed light on some of the reasons students were at times resistant to hooking up to the LCD screens for accomplishing tasks in the flexible classroom. When asked about what it was like to use an LCD monitor during class, she revealed:

Yes, I used it to type something up. I mean...I don't mind typing it up and then when it's finished printing it up, [but] I don't like people watching my progress because, well, I'm not the best speller in the world.

While she explained that her self-consciousness was "not that serious," her feelings about her spelling influenced the choices she made in the space when accomplishing a task. Tyler also had similar feelings about using the LCD screens:

Tyler: When I type, or write for that matter, and then like...I kind of get almost self-conscious about my writing even when it's on the computer. Like typing something out, I don't want to feel stupid when I show it to the class. Sometimes I wonder if I wrote something the wrong way. So I'm like pretty self-conscious about that. Like, 'Crap, I hope I didn't spell something wrong.' ...But it's not a big deal.

Interviewer: Would you feel like that would prevent you from sharing your work?

Tyler: No...[it's] not that bad.

Interviewer: It's just something that's kind of back in your mind?

Tyler: Yeah.

Although Tyler later stated that he preferred using the LCD screens over the whiteboards (see *To Manage Physical Comfort*, this chapter), like Deirdre, he revealed a level of self-consciousness when typing on his computer when it was connected to an LCD screen. Tyler noted that Doug, who he worked with regularly, would usually be the typist or scribe for their group, which allowed him to avoid those feelings of self-consciousness. My field observations support his statement, as I did not observe any instances where Tyler hooked up his own laptop to an LCD screen to accomplish a task. Although Tyler expressed a reticence for using this tool to accomplish a task, it is important to note that he believed that his

feelings did not prevent him from sharing his work with others, and he did not consider this shyness an issue. Field observation data also suggest that even students (like Tyler) who reported that they liked using the LCD screens for certain tasks also expressed some embarrassment about their spelling. For example, when Meredith, Alison, and Ned were working together to answer discussion questions based on an assigned reading, Meredith volunteered to connect her laptop and type for the group. When Meredith asked for assistance with spelling a word, Alison admitted apologetically, “I’m terrible at spelling.” The three students then worked together to correctly spell a word that was included in one of their answers.

Students also used the space to gain access to classroom resources that would support them in accomplishing assigned tasks. Small groups would sometimes move their tables and chairs to be closer to an LCD monitor they chose to use, or they would rearrange the furniture in order to bring a mobile whiteboard into their group workspace. Some students also reported their use of the space was also influenced by their current position in the room and how conveniently they were located to particular resources. For example, when asked why she chose to use a mobile whiteboard to answer discussion questions in her group, Kate responded that she would have chosen to use an LCD monitor if she had been sitting closer to one. She found it more convenient to roll the mobile whiteboard into her workspace than move her group’s furniture to another part of the room. Similarly, when Olivia, Deirdre, and Tyler were given a choice to peer review their papers in their group on an LCD screen or view them on individual computers, Olivia reported that they chose to each use their own laptops because her fellow group members did not want to move their table to the LCD

screen (which was about five feet away). When given a choice, students typically chose the mobile whiteboards to accomplish tasks in the flexible classroom space.

To Manage Physical Comfort

Students used the flexible classroom and the resources in it to manage their level of physical comfort when occupying the space. When managing their physical comfort, students demonstrated and discussed their use of specific resources in the room that helped them manage their physical movement and gave them adequate space for their person and their belongings.

When using the flexible classroom space, many students demonstrated a preference for seating that made their physical movements and general mobility easier. Several students reported a specific preference for the updated, white tablet-arm chairs (*Node* chairs by Steelcase) that were on casters and swiveled 360 degrees. This style chair is also equipped with a swiveling tablet that can be moved to the side of the chair, which made sitting down and getting up from the chair easier. For example, Tyler stated he used these white rolling chairs regularly because they spin, and he liked “how the desk part swivels out... You don’t have to squeeze out [of it] like a normal desk, which is nice.” Similarly, when asked about his physical comfort in the room, Doug noted his preference for these chairs due to their mobility; he stated, “I move around a lot, so the [chairs] that spin helped.” My observations align with Doug’s statement, as I observed on a number of occasions when he quietly swiveled from side to side as he sat in the *Node* chair during class. Alison also expressed a preference for the *Node* specifically on days when the class was assigned peer review

workshops, as the chair allowed her to easily move to other parts of the room to work with different group members. She also pointed out that sitting in this seat for peer review also gave her added space for her belongings, particularly when tabletop space was being used by her peer group members with their computers, papers, and books. I observed over the course of the semester that some students who chose *Node* chairs would wheel themselves up to a table (the square and diamond-shaped tables) for group-related work and use the tabletop space in addition to the swivel tablet on the chair for their belongings. The data collected from my field observations confirm the popularity of these chairs in particular; two students on different days approached me during class and asked me the name of the company that manufactured them. Zack noted that the “wheelie” chair would be great for doing homework in his dorm room because it was so comfortable; additionally, he would frequently seek out this style of chair in the flexible space and then wheel it from the back of the room to the front where he usually sat. During the first few weeks of class, these chairs would often go unoccupied; however, by the end of the semester, they were usually all taken by the time class began.

While several students used the *Node* chairs to manage their comfort, others pointed out that they did not provide enough workspace. In his interview, Matt noted that he was more comfortable sitting at one of the group tables in the armless, wheeled chairs that went with them, as it gave him a larger surface for his belongings. He stated, “When you have one of those [tablet] desks and you need a computer, that’s usually all that fits on it.” Laura also noted her preference for sitting at a table in one of the armless chairs specifically because she is left handed. She explained that the *Node* chairs were not “very adaptable for left-handed

people” due to a lip on the swivel tablet that, when switched around for left-handers, moved from the top of the work surface to the bottom, which made using the chair uncomfortable for her. Other comfort issues came up for left-handed students when using the whiteboards. For example, Tyler pointed out that he would not use the whiteboards frequently due to his left-handedness, as he would smear the ink on the board when he wrote on it. He explained that trying to avoid smearing the marker ink when writing on the board was difficult and physically uncomfortable; as a result, he would use his own computer to type for in-class activities when given a choice.

To Maintain Social Groups and Personal Territory

A prominent pattern that emerged from the data collected for this study was the social connections students made with their peers in class. Students used the flexible classroom space and the resources in it to maintain their established social groups and personal territory in order to uphold a sense of stability and normalcy.

Data from my field observations suggest that social groups ossified in this class within the first few weeks of the semester, as most of the students demonstrated a preference for sitting with the same two or three individuals in a small group during each class. In their interviews, students expressed that they liked the consistency and familiarity that came with sitting with the same people. When asked if she preferred to sit with particular individuals, Alison explained:

Yeah, I pretty much sit with the same two people every time. Sometimes we have other people that join our group, which is always nice, but... I also like the stability of the same people every time...I know, personally for me, I don't really like change...and most of my classes are really big, and I don't really get to know a lot of people in them. But the English class is kind of smaller, so having those two people that I usually sit with – I guess it adds to the comfort part of the room.

By sitting with the same individuals, Alison was able to maintain a sense of social comfort in the flexible classroom, and based on the classroom observations, she and her group mates (Deirdre and Meredith) used the furnishings in ways that kept them closer to one another. For example, in her interview Deirdre explained that she would sometimes have to rearrange the furniture when she first arrived in class so that her group could sit at a table together.

Interviewer: Do you find that you need to [move the furniture] when you come into class each time?

Deirdre: I guess it just depends what the class before me did. If they kind of moved it around, then I have to fix it.

Deirdre and her group mates would adjust – or in Deirdre's words “fix” – the furniture so that they could maintain a sense of normalcy and familiarity in the room. The data from my field observations demonstrate that Alison, Deirdre, and Meredith sat and worked together for class activities during almost all class meetings, and if the configuration of the furniture was disrupted from what they considered normal, they would still attempt to sit near each other. For example, during one class meeting (approximately three months into the semester), Tyler brought a guest to class and they both sat in the area and at the table where Alison's

group usually sits. Since there were two extra people occupying seats in this spot, there was not room for Meredith, who was the last in her group to arrive to class. To maintain proximity with her group, she wheeled one of the *Node* tablet-arm chairs over to this area and positioned it behind Alison. While she was not sitting at the table with the rest of her group (and the two other students), she was geographically close to Alison and Deirdre. Other seats were available in different parts of the room, yet Meredith chose to sit close to, yet outside of the newly formed group in an effort to maintain the social ties she established over the semester (Figure 4.1).

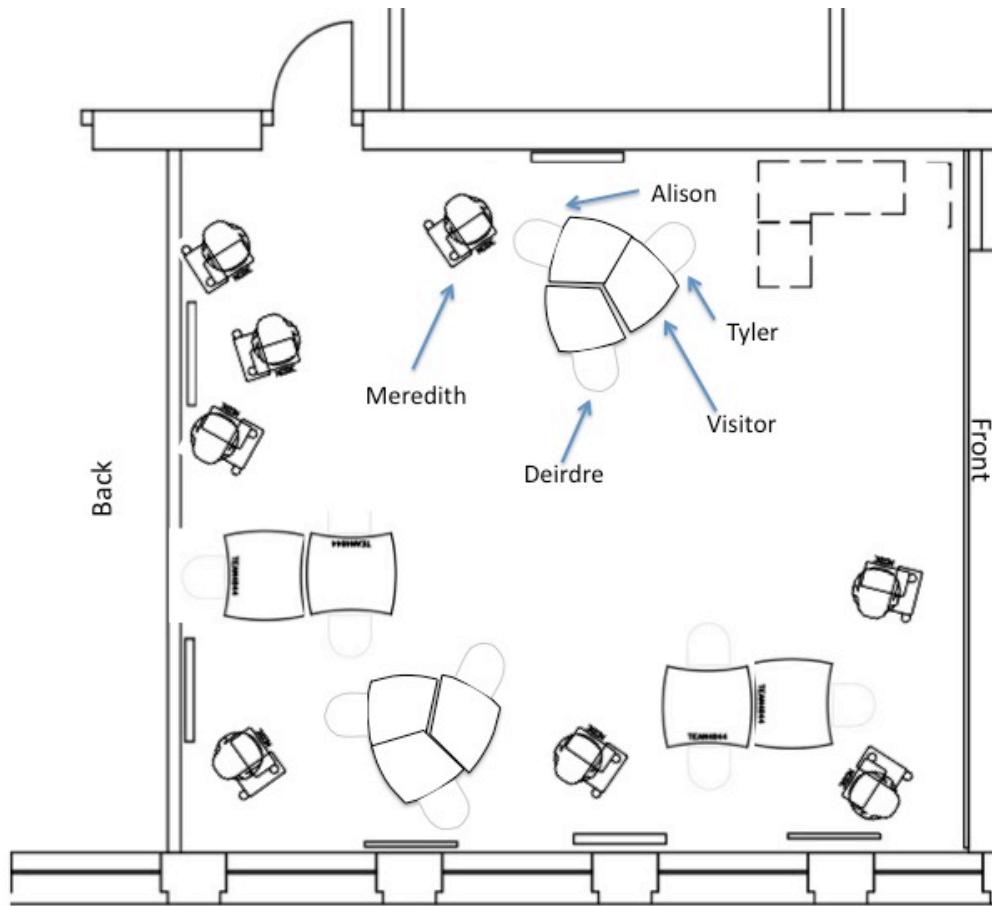


Figure 4.1 Meredith's seating position on the day her usual spot was taken by Tyler.

Data from various other student interviews, as well as numerous observations also suggest that students established a preference for sitting with particular individuals; interestingly, several students commented that even though they did not consider their group mates as close friends, they still demonstrated a preference for sitting and working with specific people and used the space to sustain their social group. For example, when asked if she preferred to sit with particular individuals in class, Olivia stated:

I would say yes and no. No, I don't have really, really close friends in the class, so I wouldn't pick them over anybody else. But when you first come into class, you kind of meet people and then you'll typically stay in the same area, which I've found is consistent with me. I'll pick the same chair or a chair around it.

Olivia's comments align with Meredith's behavior when attempting to maintain a sense of social consistency in the flexible classroom; that is, if a seat with her usual group was not available, then she chose one that was geographically close or could be positioned closer to her group. My field observations align with Olivia's statement, as she consistently sat with the same two students (Laura and Rachel), in the same area of the classroom, and in the same type of chair (*Node*) for most of the semester. Similar to Olivia, Tyler also noted that he preferred to sit with Doug, who he described as an "acquaintance." It is interesting to note that while Olivia demonstrated her preference for social consistency in the space, she also recognized the benefits of working with different individuals when she designed and explained her ideal writing classroom to me. She made a specific note that she would include four tables in the space and that groups would be forced to rotate to work with other people.

When I asked her why, she responded, “When you get into the convention of just kind of sitting where you’re used to sitting, you don’t meet new people. New people have different brains.” She explained that she believed working with different people “would affect the group dynamic” and could have a positive impact on the peer review process.

As noted above, the data suggest that students not only demonstrated a preference for sitting with particular individuals, but they also appeared to have a connection to a particular geographical spot in the room. For example, Matt discussed how he felt uncomfortable when he was not in his “normal” seat, which he identified as being in the back and center of the classroom at a grouping of three diamond tables and by LCD screen #3. Like Deirdre, who would “fix” the tables for her group, he stated, “I would make my own normal seat,” by rearranging the furniture before class started. The data from my classroom observations support Matt’s statement, as I observed him configuring the furniture on several occasions to make his “normal” seat. On one occasion, much of the furniture had been arranged in the back of the room in a random layout by the previous class; the room was not in its typical configuration (Figure 3.1), where the tables and chairs were in groups around each of the five LCD screens. Matt, who was one of the first students to arrive in class, quickly noticed that his usual table and chair configuration was not in place (or even in its general vicinity). In order to carve out his usual spot, he chose to lift one of the *Node* chairs from a spot in the center of the room and place it in the back left corner of the room. This back, left corner spot appeared to be as close as he could get to his “normal” geographic location (by LCD #3) in the space without moving the rest of the furniture. Interestingly, Matt chose to lift a heavy,

castered chair above his head and over various other pieces of furniture instead of rearranging the randomly scattered furniture that occupied his usual area.

I observed a similar instance a week later when Matt chose a *Node* chair and sat in the same back left corner because his table grouping was not in its usual spot. On this particular day, I arrived early to photograph the space for my research, and I arranged the furniture into a different configuration (Figures 4.2-4.4) so that more than one furniture grouping could be seen in the shots. After I photographed the room, I left the furniture in this configuration and observed the students as they arrived to class. Matt was one of the first students to arrive, and he again noticed the room's different configuration. After choosing his seat in the back (Figure 4.2), left corner, his group mates, Brad and Carrie, arrived. Upon seeing the room's configuration and that Matt was not in their usual area, they looked confused and asked Matt, "What's up?" Matt responded, "There was no table."

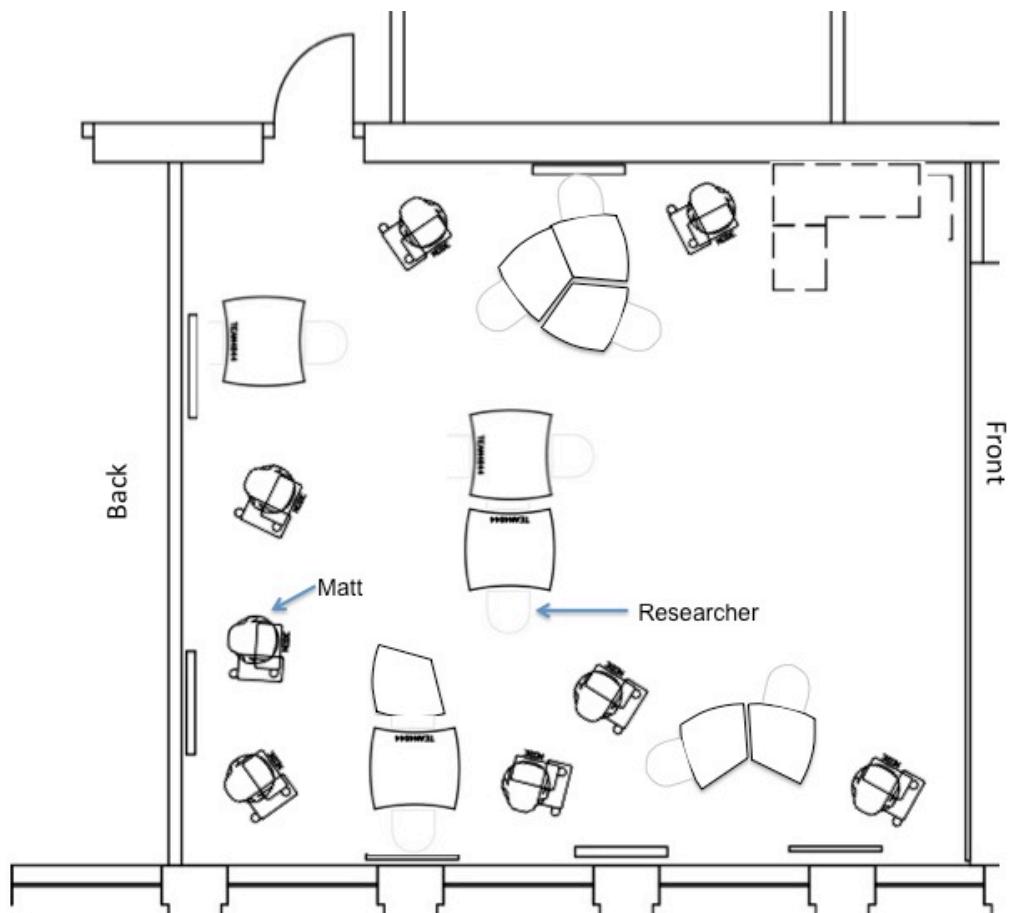


Figure 4.2 Configuration on the day I took photos.



Figure 4.3 Classroom arranged for photos, view from entrance.



Figure 4.4 Classroom arranged for photos, view from back.

The different layout of the room seemed to unsettle Brad and Carrie, who stood in the middle of the room for several seconds, as if they were trying to decide where they would sit. I was sitting at a table nearby and said to them, “You guys know you can move the tables, right?” After my comment, Brad and Carrie moved the table that was adjoining mine and positioned it in the center, back of the room in their usual spot (Figure 4.5). Once in position, Matt wheeled his *Node* chair closer to their table (Figure 4.5).

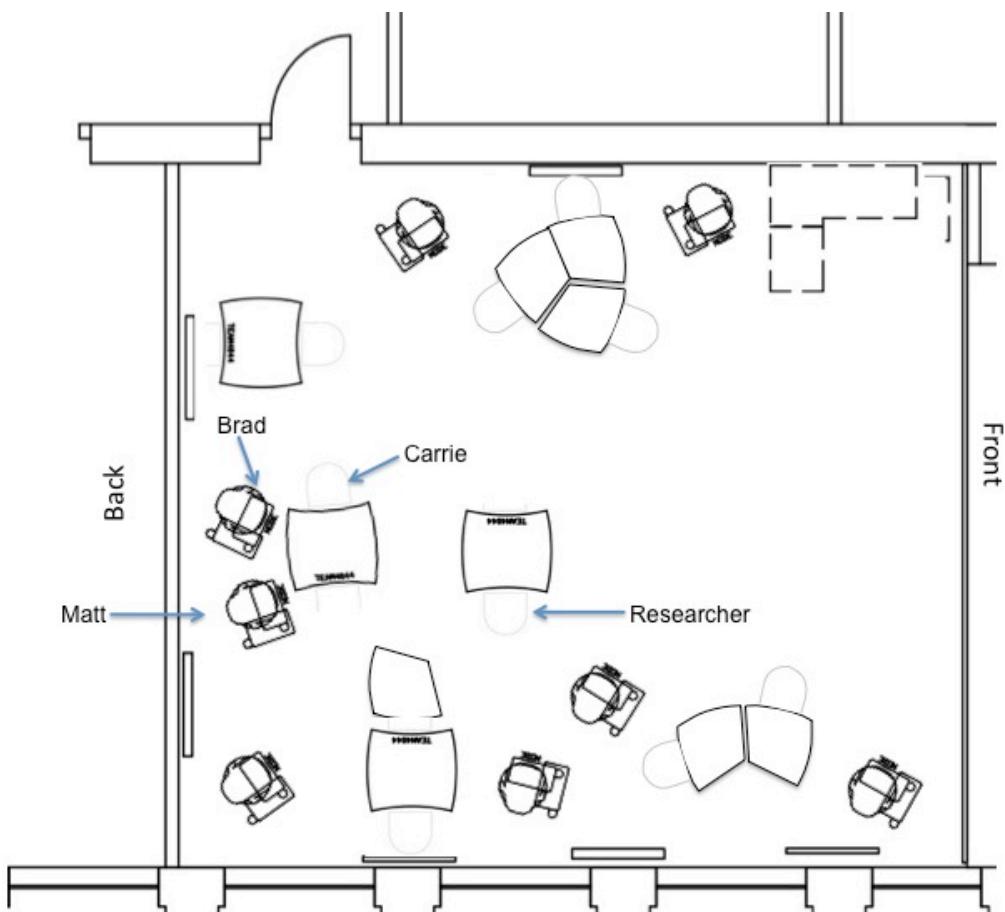


Figure 4.5 Configuration after Carrie and Brad moved the furnishings to their usual spots.

Like Matt, Brad and Carrie used the space to maintain their social group and the location in the room they considered theirs. What is of particular interest, however, is they did not feel confident enough to move their table until I asked them if they knew they could; even though my comment was phrased as a question, it appears as if these students needed an acknowledgement or permission in order to feel comfortable enough to move the furniture, although their instructor and TA had encouraged them throughout the semester to do so.

Student preference for specific areas of the classroom was especially evident during one class meeting towards the end of the semester when there was a substantial number of student absences. Twelve students were present during this class, and they chose their usual spots in the room when they arrived; however, a few students ended up sitting alone in these areas because their group mates were absent. These students used the space to maintain their territory in the flexible room despite their relative isolation from others. Students' rootedness to a particular location in the room was also observed when the instructor or TA assigned students to small groups versus letting them choose who they wanted to work with for classroom activities. On several occasions, I observed that many students were hesitant to move from their original spots even when they were encouraged to use other parts of the room and were asked to work with different people. As a result, the back of the room, which was noted as a preferred spot for several students, would be utilized more than other areas.

While it was evident that many students in class used the space to maintain their established social groups, Steve discussed and demonstrated how he used the flexible classroom to maintain his personal territory. As a self-identified introvert, Steve noted that he used the “wheel-around desk chairs” (the *Node* tablet-arm chairs) because he could sit away

from his group members and on the “periphery” in the room on days when he did not feel as comfortable interacting with others. Data from my fieldwork supports Steve’s observations about how he used the seating in the room, as I observed on multiple occasions when Steve would select a *Node* chair and position himself behind or to the side of the group (seated at a table) he usually worked with on assigned activities during class. On these days, Steve used the mobile seating to maintain his personal space until he felt “warmed up” enough to join other students at the group table.

To Cooperate in Small Groups

As discussed in Chapter 3, the instructor and teaching assistant used cooperative group work regularly to cover course content. Since cooperative work was a mainstay in this class, a pattern of student use of the space for group work naturally emerged. When using the space for cooperating in small groups, students used the space or the resources in it to interact or communicate with their peers in collaborative groups in preparation for group work. Units for this portion of the study were limited to student-directed usage of the flexible classroom and were coded according to how students chose to form their groups and how they chose to occupy parts of the room in order to prepare to work together.

A number of students noted in their interviews that the students used the furnishings in the space frequently as they assembled themselves into their small groups. Brad noted that when he was asked to form groups, he would usually move the chairs that were positioned at a table around to accommodate everyone. He pointed out that he did not remember moving any of the tables, as he usually felt that they were “positioned perfectly” for the work they

needed to do. Matt, who always chose to work with Brad and Carrie, also acknowledged that they moved the furnishings to support their group activities. Interestingly, his comments were also limited to their movement of the chairs, which align with Brad's statement above. Matt stated, "If we had peer editing or something, you could move the rolling chair to a different desk or you could swap seats with somebody and it wasn't a problem at all."

When asked to share an example of a time when he needed to move the furnishings, Doug also cited doing so for collaborative work. Doug, who usually sat in a *Node* chair (which included an attached tablet desk), stated that he would often use his seat to "scoot" himself over to his group members, or they would move a table over to where they wanted to work. Similarly, Steve used his *Node* chair in the same way, stating, "with these wheelable chairs, all you've got to do is just kick your feet and you move up here." Data collected in the field supports the information Doug and Steve shared about their use of the *Node* chairs to form their cooperative groups; I observed multiple instances where these students remained in their seats, with their belongings placed in the storage bin under the seat, and wheeled themselves from one area of the room to meet up with their respective groups. Given that Doug stated that he moved around a lot during class (earlier, this chapter), and that Steve chose this style chair to maintain personal space, it is understandable that these students would also use the functionality of the chairs to assemble into cooperate groups.

Data collected during classroom observations also revealed that students used the flexible classroom to communicate with their group members about how and where they wanted to position themselves in the space to do their collaborative work. Occasionally some

students and/or groups would take several minutes to decide on who would move or where they would set up their workspace. Steve, who was a returning student after a nine-year hiatus from college, noticed this indecisive behavior of his younger peers. He stated that for some students, questions about where to sit or who would move for group work could “really hang them up” and would result in the loss of group work time. I noticed this indecision during my field observations, as well as a similar hesitancy from a few students in particular who did not demonstrate over the semester a preferred social group. In other words, students who did not display a pattern of sitting with the same individuals in the class were, at times, slower to form collaborative groups than those who had an established group. I observed several instances where other students used the space to invite or encourage these more introverted students into their collaborative groups. Ethan was one of the students who did not demonstrate a pattern of sitting in a particular part of the room or sitting with the same individual(s). I noted during several observations that, when asked to form a collaborate group, Ethan would remain in his seat. For example, when the instructor asked students to form peer review groups to review draft interview questions they had authored, Ethan did not get up to find a group. After Rachael and Tyler partnered up, they noticed Ethan sitting on the other side of the room by himself and then called him over to join their group. Steve, the student who identified himself as introverted, would also display some hesitancy about joining a collaborative group. When Doug saw that Steve was sitting by himself at the front of the room after the class was asked to form groups for peer review workshops, Doug and his other group members waved to Steve to signal him to join them where they were stationed at the back of the classroom. In both examples, both Ethan and Steve moved their

chairs to join a group in preparation for work and used the space in those moments to interact with peers. However, it is evident that these students in particular did not feel comfortable enough arranging themselves into groups on these occasions without encouragement.

To Engage with the Entire Class

While students used the room to interact with their small groups, the data also suggest that students used the flexible classroom to engage with the class at large. When engaging with the entire class, students used the space or the resources in it to make connections with the class as a whole when presenting their work or ideas; they also demonstrated a preference for a particular seat or location in the space that allowed them to see everyone.

When asked about why they preferred to sit in particular seats and/or locations in the flexible classroom, several students shared that they made choices based on how well they could see everyone else in the space (versus just their group mates). For example, Matt noted that one of the main reasons he liked sitting at the back and in the center of the room was that he had “a perspective on the whole classroom” where it was “easy to see the people around you.” Similarly, when discussing her preference for the back of the room, Laura stated that from this spot, she could see what everyone else in the class was doing. Alison also discussed how uninterrupted sightlines were important to her when she was in the flexible space. She stated, “I just don’t like it when there’s people behind me that I can’t see – like I can’t see what’s going on behind me. So, it’s like I kind of sit off to the side so I can see everything.” Alison discussed her seat preference further, noting that the spot she chose allowed her to see the instructor, her group mates, the windows, and the rest of the people in class. These

examples demonstrate how closely students related their ability to connect with the rest of the class to their ability to see everyone around them. Data from my field observations support the statements shared by these students, as they consistently sat in areas that afforded them views of students who sat in other parts of the room. Alison also pointed out that if she was watching the instructor at the front of the classroom and others in class spoke, she could see those students simply by swiveling her chair in their direction. However, when the fixed furniture was in the space at the beginning of the semester, engaging with others who sat in different parts of the classroom did not appear to be as easily achieved for some students. With the fixed furniture design, eight seats in the space faced away from the center of the room (Figure 1.1), with four of these seats facing the back wall. In these seats, students sat with their backs to the instructor and the rest of the class. The chairs that were outfitted in the space with the fixed tables (before the new mobile furnishings arrived) did not have wheels, which made adjusting to see the instructor, TA, or other students in the room cumbersome. During these first few weeks of the semester, I observed that students who sat in these seats would rarely turn their chairs so that they could engage with the rest of the class. Doing so would require them to lose their tabletop surface, which they used for their laptop computers and other belongings. Instead of moving their seats, they would often crane their necks in an attempt to see other people, the instructors, or resources (LCD screens or the main projector) in the room. Once the flexible furnishings arrived, I observed that students consistently positioned themselves in their seats so that they could easily maneuver to see the front of or into the center of the room, where they could engage with their entire class, including the instructor and teaching assistant.

A number of students noted that the mobile whiteboards in the classroom were especially useful for helping them share their work or ideas with the rest of the class. After students had completed a task in small groups, they were frequently asked to share the product of their work (answers to discussion questions, thoughts on assigned readings, etc.). Students who chose to use the whiteboards for completing a task would then use the boards to engage with the rest of the class. Laura noted specifically that the mobility of the boards made sharing work with the class easier, when she stated, “it’s good because you can roll it around and let everybody see it. You can work on it at your table and then roll it to the front of the room.” I observed that unless specifically asked to go to the front of the room, students would typically stay in their seats or near their preferred locations in the room when sharing the work from their whiteboards with the class, and they usually did not adjust their boards for the rest of the class to see. However, during several observations I noticed a few students who chose to stand when presenting work from their boards. For example, when presenting his group’s response to a discussion question based on a reading assignment, Brad stood and then moved his whiteboard away from the center of his group and towards the back wall of the room so other students could read it. The instructor responded that adjusting the board so they could all see was a good idea; after this statement, groups that presented after Brad’s followed suit and wheeled their boards into positions that they felt offered better views to the rest of the class. A few other students, including Steve and Carrie, also choose to stand to engage with the rest of the class when sharing the work displayed on their whiteboards.

Although they were not used as much as the mobile whiteboards, the LCD screens were also used by students to engage with the class. On various occasions, students were

given the option between using the whiteboards or the LCD screens to complete a task. Students who opted to use the LCD screens would frequently choose to share their work using this technology once the task was completed. When sharing work on the LCD screens, students typically remained seated near the screen they were using and read from it directly. Doug stated that when he used this technology to present with his groups, “we just sat there and talked about what was on the screen.” I observed only one instance where a group chose to use the large, main projector in the room to share their work with the class. During this class, one group (comprised of Steve, Tom, and Ryan) worked at an LCD screen to co-author the responses to several discussion questions based on a short story they were assigned. Most groups chose to use whiteboards for this task, and each group chose to wheel their boards to the front of the class to present their answers. However, when their time to present came, Steve, Tom, and Ryan chose to take the laptop they composed on to the instructor’s lectern and connect it to the larger projector. I sat beside this group as they worked, and I heard them discussing that the rest of the class would not be able to see their work if they presented from the LCD screen where they had been working. As a result, this group used the main projector (and not the other LCD screens) in an effort to allow as many of their classmates, as well as their instructor, to view their work. Steve, Tom, and Ryan saw the classroom projector as a more effective way to engage with the entire class than presenting from the smaller LCD screen.

RESEARCH QUESTION #4: HOW DO STUDENTS PERCEIVE THE FURNISHINGS, SPACE, AND TECHNOLOGY IN A FLEXIBLE CLASSROOM?

Determining students' perceptions of the flexible classroom involved triangulating both interviews and observational data from the field. The results from the analysis of the data gathered to address RQ4 reveal that students perceived the flexible classroom as a space that 1) occupies attention, 2) allows for control, 3) affords comfort, 4) facilitates interaction, 5) hinders learning, and 6) reifies hierarchical and social territories.

Occupies Attention

The students interviewed for this study noted that the design of the flexible classroom occupied their attention; that is, the room held their attention and engaged or entertained them in ways that helped them focus on the course content.

Several students discussed the flexible classroom in terms of how different it was compared to other types of formal learning environments they had experienced. For example, Tyler noted that the space "almost keeps you more awake" due to the flexible and mobile furnishings. He added, "if you walk into a classroom, and let's say it's like [a] high school style and it's just desks or something in rows – that's just about the most boring thing." Tyler spoke specifically about how the varied shapes of the tables, the different layouts of the furniture from day to day, as well as the "spinning" feature on the chairs both entertained him and kept his attention "so I don't doze off late in the day." Olivia made a related statement, noting that the "novelty" of the room was especially helpful in keeping her interest in a 100-minute class that met late in the day – a time of day that could be difficult for her to focus. She also compared the room to other classroom spaces, such as the lecture

halls (some seating as many as 400 students) where she took several introductory science courses. Olivia recognized that the small size of her composition class was a factor that contributed to keeping her attention, but she also pointed out the design of the flexible classroom in particular when she stated, “it’s definitely helpful that [the room] is not normal...or typical.” She preferred the design of the flexible classroom space to a lecture hall “for sure” because “it keeps it not boring.” Similarly, Alison pointed out that she was more motivated to attend class due to the space:

I don’t dread going to English. I mean, you know I’m a science major, so I kind of like the more sciencey things than the English things. But I like going to [English] class. I’m not like, ‘Ugh! I have to go sit in a big hall.’ It’s a nice room, and I just...I get to sit in the spinney chairs, so...I guess it helps me going to class.

Alison’s statement reveals that the furnishings in the room, particularly their mobility, can help individuals focus in class, compared to the fixed rows of tablet arm chairs that are prevalent in large lecture halls on higher education campuses. These data also suggest that an innovative classroom design can be appealing to students who do not consider English or writing a personal interest or strength. In addition to the layout of the space, Alison also pointed out that the room was “not boring” due to the brightly colored upholstery on the chairs, the wall color, and the large windows; regarding these features, she added, “you don’t feel like you’re in a prison...”

Like other students, Laura also commented on how the room kept her attention because she felt the room looked different everyday. She added, “Walking into the same

boring classroom every day would be monotonous.” Steve commented that the changing layout of the furniture was helpful for him as well. During his interview, he disclosed that the flexible nature of the room was particularly helpful for him when dealing with his Attention Deficit Disorder (ADD):

I was diagnosed with ADD when I was younger, so things that kind of move around and change – they tend to hold my attention a little better...and the flexibility of it – it’s fun. You know, I can get in one of these roll-around chairs, and I know it doesn’t seem like much, but just being able to [move], instead of having all the desks in rows or in like concrete groups every time.

Steve’s perception that the space assisted him in the management of his ADD is especially noteworthy, as it sheds light on how a flexible learning space can potentially accommodate the needs of students who learn differently and are impacted by the physical design of the spaces in which they are situated.

Allows for Control

A prominent pattern emerged in the analysis of the data that suggests students believed the flexible classroom space (or aspects of the room such as the mobile furnishings, whiteboards, or digital technology) allowed them the opportunity to control their environment, and gave them the freedom to make choices about where they wanted to be situated in the room and the kinds of resources they used to complete tasks.

Several students noted in their interviews that they liked how the flexible classroom gave them the opportunity to make choices regarding where they wanted to sit. When asked to share his favorite thing about the classroom, Brad stated that the “free-flowing” design of the space was very appealing. He added, “basically [you] sit where you want, and you could move [the furniture] however you want...It’s whatever is convenient for you that day – just move it around. I liked that.” When asked the same question, Tyler had an equivalent response:

I like the fact that there are different designs of tables so we get to pick where we want to sit, and that’s nice...We’re Americans, so we want options and lots of them. So I think that’s kind of nice because sometimes I don’t just sit in the spinning chairs. Sometimes I sit at a table. So having the option is nice.

When Tyler, a Business Administration major, referenced Americans liking choices, he did so with a quick laugh and a smile on his face; I read his statement as a humorous admission and his nod to this cultural proclivity. While Tyler’s thoughts on American culture and choice may or may not be valid, his statement reveals something deeper – that is, how valuable having even a modicum of control in a learning space is for its users. Data from my observations align with Tyler’s comments, as I observed him occasionally sitting at tables for small group work, as well as sitting in a tablet-arm chair for whole class discussions or lectures. When asked about his comfort level in the flexible classroom, Tyler noted that control was a significant factor when choosing where he wanted to sit. He answered, “I feel comfortable in the [*Node*] chair because I get to kind of control where I’m at and which way

I'm looking without having to drag a chair around..." Steve also recognized and appreciated that the classroom had a combination of group tables and "solo" seating. A self-described introvert, Steve stated that having the option of sitting at a small table or in an individual tablet-arm chair allowed "for that introvert day versus when I want to be out there in the mix" with the other students. My field observations support Steve's response, as he demonstrated a preference for sitting in an individual seat and slightly away from other groups in the class. Olivia echoed Steve's sentiments when she stated, "I wouldn't say I'm anti-social, but I like having the option to kind of hide away if I need to." I observed Olivia participating actively in both whole-class and small group activities regularly, and she was social with her peers, her instructors, and with me. However, her response demonstrates that having a space that allows some form of control can be helpful to even the students who are actively engaged and participatory in class.

The ability to have control over their mobility throughout the space was also discussed by the students as a positive characteristic of the flexible classroom. For example, Alison admitted that she was surprised by the movement the space allowed her:

Interviewer: What about having class in this particular classroom has surprised you?

Alison: I had a friend who took English first semester and what she said was you have all your desks with computers...But in [the flexible classroom] you get to move around and, you know, you have more freedom. I had more freedom than I was expecting in the room.

Alison's comments reveal that her expectation regarding the design of a composition classroom was that of a computer lab configuration, with fixed desks and university supplied

computers (from her response, her friend most likely had composition class in one of the department's laptop or desktop computer classrooms). However, the mobility the flexible design allowed Alison to control her position in the space. Similarly, Matt commented that his favorite thing about the classroom was "the general mobility of things," which allowed one to easily "get around" the space and "do whatever you want."

Students also talked about how they liked having a choice when using tools in the classroom, specifically the mobile whiteboards and the LCD monitors, when doing an activity in class. As discussed in Chapter 3, the instructor or TA would frequently give students the option of reporting their work generated in small groups on the whiteboards or connecting their laptops to the LCD screens and typing their responses. A few students pointed out that having this choice was another positive characteristic of the room. For example, Olivia stated:

it's really cool because we get to use all the technology, and you get to choose what you use. I guess maybe that's more for research, but we get to choose whether or not we use the LCD screens with our laptops, or the whiteboards, or a verbal discussion. That's kind of cool.

Regarding having the option to choose between using a whiteboard or an LCD screen, she added, "I like having the flexibility. People learn in different ways." Alison also appreciated having a choice of using the LCD screens or the whiteboards in class. When asked about her preference, she said using a whiteboard was fun, but this tool also gave her a sense of authority:

I think it reminds me of middle school when you get to write on your own little whiteboards in class...it's always fun to have the markers, and you're like, 'I feel like I'm the teacher!' You know, it kind of feels like you have control over what's [happening].

Alison laughed when she talked about how using markers and a whiteboard was reminiscent of her middle school experience; however, her comments demonstrate a perception that having a choice and using this particular tool can be empowering for some students. While giving students options regarding the technologies (both high and low-tech) they used in class for specific activities was decided by the instructor or TA, such choices would not be possible had the room not contained these features in the first place.

The data collected for this category are particularly interesting, as they reveal that even though most students in the flexible classroom did not deviate far from their usual seats, locations in the classroom, or the individuals with whom they chose to work, simply having the ability to control these factors – whether or not they chose to exercise that control – was appreciated by students. For example, Doug pointed out that he liked the cup holder feature that each of the *Node* tablet-arm chairs (aka “wheelie” or “rolley” chairs) had even though he didn’t use them:

Interviewer: Do you use the cup holders?

Doug: Oddly enough, no.

Interviewer: But just knowing you could?

Doug: Yes. Right. Just the fact that it’s there.

Simply having the option available gave Doug a greater sense of control in this learning space. In a related example, Doug noted that he preferred to sit at the back of the classroom because his favorite tablet-arm chairs were usually in this location. Although he acknowledged the chairs could be easily moved, and that his instructor or TA would not mind if he moved the seat, I did not observe him moving the chairs for reasons other than to assemble into groups for class activities. Similarly, Deirdre revealed in her interview:

I like coming into a room where it's kind of different every day, because I do like change, even though I kind of like one type of way...But I like that there's different options so I can be different if I want to be.

While the data from my observations revealed that Deirdre sat with the same individuals throughout the semester and in relatively the same location in the classroom, just knowing she *could* move or make different decisions regarding her placement in the space gave her a sense of control. Despite this perception of control, the data from my observations suggest a disconnect between students' willingness to exercise that control through movement in the classroom despite frequent encouragement by their instructors, as well as the material affordances that made such movement easier.

Affords Comfort

During their interviews, students discussed their comfort levels in the space from multiple perspectives. Students perceived that the flexible classroom (or aspects of the room) afforded them both physical and emotional comfort. For this study, physical comfort is defined as having enough bodily personal space, as well as having a comfortable seat or

position in the room. The data suggest that being physically comfortable impacts emotional comfort, which includes a sense of being relaxed and feeling at ease in the classroom.

All the students commented during their interviews that the seating in the flexible classroom was physically comfortable. Several students discussed the tablet-arm *Node* chair (by Steelcase) in particular; descriptions of this style of seat ranged from “not uncomfortable,” “relatively comfortable”, to “very comfortable.” Students frequently compared their physical comfort level in the flexible classroom to rooms they used for other classes. For example, Alison noted that the seating in the space allowed her more legroom than an auditorium:

Alison: Well, the chairs are really nice. I know in most of my classes it's like the lecture classrooms, and it's just those rows of desks. And some of them are really close together – and I'm kind of tall, so my legs get...but with the [flexible classroom chairs] – the chairs move and the chairs are kind of big...

Interviewer: So in the lecture halls, there's not enough room for you and your stuff?

Alison: Yeah. So I definitely feel comfortable in this space.

Similarly, Olivia compared the physical comfort of the seating in this composition classroom to other rooms where she had class, noting, “They’re not the compact, disgusting chairs in a lecture hall, which is a plus.” Doug also discussed the comfort of the seats due to their mobility. As discussed earlier in this chapter, Doug shared that he frequently moved around in his seat during class. When asked about a time when he felt uncomfortable in the flexible classroom, he replied:

Doug: ...probably sitting too long, because...I think in just any chair if you sit too long you can't be comfortable.

Interviewer: So it's important for you to be able to move around a bit?

Doug: Yeah...Just stretch my legs a bit.

According to Doug, no matter the chair, sitting for long periods can be physically uncomfortable, so having space to move made a significant difference in his comfort. Olivia also pointed out that sitting for long stretches of time could be uncomfortable, which was why she often preferred using one of the mobile whiteboards. She stated that using a whiteboard for a group activity “gives me an excuse to get out of my seat I guess and move around. It was a long [class] section.”

Having enough personal space to be physically comfortable also appeared to impact students’ emotional comfort as well. For example, Steve, who dealt with both personal illness and the loss of a family member during the semester this study was conducted, stated that simply having more physical space was a benefit:

Steve: I missed less time in here because I just enjoyed it. And I mean, usually when I’m in a classroom where I feel like people are right up on me – I’m elbow to elbow – it actually can create a lot of anxiety for me. And surprisingly [with] as much group work as we’ve done [in this class], I don’t really get that sense of anxiety.

Interviewer: Because you feel that you have enough space?

Steve: Yeah, that’s very important just having the space.

Like Steve, Brad made statements in his interview that suggest his physical comfort was closely related to his emotional comfort in the room. He pointed out that the seating in the flexible classroom was “more comfortable than sitting in an auditorium chair.” Brad explained that having his “own little space,” made him “more relaxed and ready to take in

information” because he was not sitting so close to other students, as was the case in his classes held in a lecture hall. He added, “You’re not worried about – ‘This guy’s right next to me. He’s looking at my paper. What’s he doing?’” Matt’s perception of the classroom as comfortable also suggests that having adequate space for one’s person is related to one’s emotional comfort, as he stated, “there’s a lot of space so you’re not really confined to the people around you. You can kind of be yourself.”

Some students also attributed feelings of relaxation to the colors and lighting in the room. Matt, who described the space as an “informal type of classroom,” said the room had a “relaxed type of environment” due to the “calming [wall] colors” and the natural light afforded by the large windows. Other students also discussed the importance of the windows, which they perceived created a sense of openness. For example, when asked to design and draw her ideal classroom, Laura included lots of windows for natural lighting. She stated, “not having windows makes you feel like you’re underground, and it’s a little depressing.” Laura’s perception of comfort that the windows afforded her align with my observations, as Laura regularly sat by a window during class. Similarly, Tyler shared, “I just like to be able to see outside and feel like I’m not caged in.”

Facilitates Interaction

The data collected from both interviews and field observations suggest that students believed that the flexible classroom encouraged interaction. Students perceived the classroom or aspects of the room (such as its layout, furnishings, and whiteboards) as a space that

facilitated interaction and increased communication with their instructor, teaching assistant, and classmates; as a result, the space made connecting with others easier.

Many students believed that they had more interaction with their instructor and teaching assistant as a result of the flexible design of the classroom. Several participants noted that their instructors had greater access to them when they worked together in small groups. For example, Alison stated, “If we’re doing group work, they can move around, and they can walk up [to us] – I think it’s easier for them to talk to us, and so that makes it easier for us to learn.” Laura also recognized how the mobile furnishings allowed her instructors to interact with the class, stating, “If we were in rows, it would be harder for them to squeeze along the row and get to us.” A few students pointed out that they felt the design of the room enabled the instructors’ to give them more individualized attention:

Tyler: ...since we’re split up into groups, sometimes if we’re sitting at tables and working with each other, they can come over and kind of just address our group and see where we’re at in the process of whatever we’re working on. So we get to have a little bit more one-on-one...more like individual attention. That’s always nice.

Interviewer: Okay.

Tyler: And they can just kind of walk around, and it’s easier to get around the classroom.

Doug also discussed his perception of having increased communication with his instructors in the flexible classroom and how he felt getting more attention was especially important in a composition class:

Interviewer: Do you think that the flexible design has influenced how you communicate with your instructor or your TA?

Doug: Um, a little bit more interaction.

Interviewer: In what way?

Doug: They can walk around, talk to us.

Interviewer: So they have more mobility?

Doug: Yes – like versus a lecture hall or row seats.

Interviewer: Okay. Do you think that's good, or does it really matter?

Doug: In English class it's good.

Interviewer: Why is it important in English class?

Doug: Well, personally, I really can't write very well, so I need a lot of one-on-one feedback.

Interviewer: So it's helpful to be able to be closer to your instructor in that way?

Doug: Yeah.

Doug's comments demonstrate not only his perception that the space facilitates interaction with his instructor, but also the value a flexible design can add to a writing classroom. He associated proximity with the instructor and/or TA with individualized attention, which he felt he needed because he "can't write very well." These statements, in addition to those from other students, align closely with the results reported in Chapter 3 regarding the instructor's use of the room "to check in" with students. The data from Chapter 3, as well as these results demonstrate both the instructors' and students' appreciation for a learning space that encourages interaction and makes communicating with each other easier.

In addition to discussing how the flexible space allowed for more personal attention with their instructor and TA, students continued to compare the room to lecture halls where they met for other classes. Doug, in the example above, referenced a lecture hall and suggested that it does not afford instructors the kind of mobility that leads to more face time with students. Olivia commented that her instructors "wouldn't be able to move into the

middle of the lecture [hall]...If you're stuck in a lecture hall like a theater style, they're not allowed to move around." Other students also compared the communication they had with their peers in lecture halls to the level of interaction that happened in the flexible classroom. Several participants remarked that they believed their composition classroom encouraged them to connect in more meaningful ways with their peers. For example, Laura noted, "When I compare [the flexible classroom] to another class I have that's more like a lecture hall or something, I feel like I've gotten to know people better and therefore I'm not afraid to ask them questions about an assignment." She also acknowledged that the smaller class size (classes are capped at 20 students in this space, and Laura's class had 19 enrolled) played a part in her ability to communicate with her peers, and that "we all kind of know each other...If not by name, then at least by face." Matt also admitted that he felt more confident interacting with his peers in the flexible classroom. When asked how he would characterize his experience in the space, he stated, "I'd say it was a positive experience in the classroom. I was willing to speak up and, I guess, put my input towards a discussion more...I was willing to ask questions in a small group class as opposed to the large lecture [hall]." Matt's comments demonstrate that the flexible classroom facilitated working in small groups, which encouraged communication. He added, "the only other comparison I have is a large lecture freshman class. So I would only talk to maybe the person next to me in a large class. In this class, I was able to, I guess, meet a larger group of people and connect with them." Similarly, Olivia believed communication between peers was improved in the flexible room versus a lecture hall due to the wheeled furniture. She stated:

it's easier to talk to someone looking directly at them than opposed to the back of their head, like in a lecture fall. You get to move around more. Although we don't move around as much in class as I think the [furniture] wheels would allow...But I definitely think that helps.

Although Olivia recognized that as a class, they did not veer far from their usual spots in the room, she did perceive the mobile furnishings as instruments that improved the interaction they had with each other.

Like Olivia, Laura also perceived that interaction between peers was influenced by the mobile furniture because "you can slide around the table to look at somebody else's work" in peer review sessions. Alison and Deirdre spoke specifically about the benefits of the wheeled chairs for nonverbal communication with others in the classroom; that is, they could easily turn in their chairs to make eye contact with other students and their instructors no matter where they were in the room. Other students noted that having group tables also encouraged interaction with their peers in the classroom. For example, Brad believed his communication with other students was "Definitely enhanced" because he sat with the same individuals most of the time and learned more about them. Tyler pointed out that the different layouts that he would encounter at varying times of the semester also encouraged him to interact with people he didn't know as well in class:

Interviewer: Would you say that the flexible design has influenced the communication you have with other students in the class?

Tyler: Yeah, I would say so. Because I think just changing the design...like when you walk in [you] just almost have a tendency to sit somewhere else. If the design is changed, you're like, 'I'll change it up' – that kind

of thing. So you get to meet some more people. But, I guess that didn't happen too much. Like, I pretty much sat with mostly the same people the whole year...

Here we see Tyler's perception of the space as a tool for interacting with others. Like Olivia, he admitted that he did not frequently choose to sit with other people while in class. However, he did acknowledge that the layout of the room could entice him to choose a different seat. Data from my classroom observations support Tyler's statement, as I observed that while he did have a preferred location in the room, he would occasionally choose to sit at a table with a different person or persons.

Hinders Learning

While perceptions of the space were largely positive, a pattern emerged that suggests that students at times felt that the flexible classroom hindered their learning. For this study, *hinders learning* is defined by students' perception that the room or the resources within it interfered with their ability to navigate the space to complete specific tasks, as well as fully engage with the course content, the instructor, or their peers.

Similar to the perceptions by the instructor, several students commented that the flexible classroom could at times become crowded and unorganized due to the mobile furniture. Since there was no "set" floor plan for the room, the space was frequently set up in different configurations by previous users. When asked about her least favorite thing about the flexible room, Alison stated, "Sometimes, because there are so many chairs, it gets a little crowded. It's kind of hard to move around, and it's always changing. And like I've said before, I'm not a big fan of things that always change." She added that the crowding in the

room could be bothersome when students from the previous class left furniture near the entrance, which she would have to navigate around when she arrived. However, she pointed out that this was “not that big of a deal” in relation to the other perceived benefits of the room. Similarly, Brad stated that his least favorite thing about the space was that “every once in a while some stuff would get in the way.” Brad explained that on a few occasions he and his group members found it cumbersome to move the mobile whiteboards into a space where they could use them for an assigned task, as “the chairs got in the way of the board.” Even though the furniture in the space on these occasions slowed down the work Brad was doing with his group, he characterized this crowding as “a minor inconvenience,” and added, “We just had to move chairs a couple of inches every once in a while.” Olivia’s comments regarding the occasional crowding in the space reflect the ideas shared by Alison and Brad as well. Like Brad, she believed that the whiteboards could interfere with her movement in the space, particularly when she had to assemble into groups for an activity. She stated, “It’s like, ‘Okay, I’m going to move my chair over to the other side of the table. Let me move all five of these whiteboards out of the way.’”

While some students commented on the crowding of the space due to the mobility of the furnishings, others discussed how the positioning of the furniture or the location of the LCD screens could hinder their ability to focus and interact with others in class. For example, Deirdre discussed how the fixed tables at the beginning of the semester (before the mobile furnishings were put in place) often forced her to sit in one of the seats where she could not face the instructor (Figure 1.1). She stated, “I didn’t like to have to keep turning around every

time he spoke. I'm pretty sure he'd understand if I didn't keep turning around, but it feels rude to just sit with my back to the teacher." Deirdre noted that once the room was outfitted with mobile furnishings, having her back to others was not as much of an issue; even still, she felt she was "constantly spinning and spinning to turn and look [at other people]." When asked if she felt the design of the room had impacted her learning, Deirdre admitted that the layout of the room could be a distraction for her:

Deirdre: I think I'm more inclined not to pay as much attention with the way the room is set up.

Interviewer: Maybe it's a little distracting for you...the way it is with all the things that move around?

Deirdre: I'm not complaining. Yeah...It's easier to look at other people because you're not facing the front...I'm more of a people watcher.

Interviewer: Okay. And is that necessarily a bad thing?

Deirdre: Not unless you say anything really important.

Interviewer: So would you say that can sometimes interfere with your ability to listen to the instructor?

Deirdre: Yeah.

Deirdre recognized that she is able to engage more in the learning process if she is facing the classroom "front," noting that she felt she was more apt to "zone out" if her back was turned. She stated, "I have a computer with Twitter, Facebook, you know? I'm not listening to what you're saying so I'm not looking at you." When designing her ideal writing classroom during the conceptual mapping exercises, Deirdre was specific that the layout of the space should be so that "no one has their back turned." My classroom observations reinforce Deirdre's discussion of the importance of her ability to easily see her instructor, as I noted that she

consistently sat in the same area of the room and faced the front or the center of the class (or sat such that she could easily turn her chair to do so).

Like Deirdre, Doug also believed that facing the back of the class could hinder learning. When he was drawing his ideal classroom, he noted specifically that he would not put LCD screens on the back wall:

Doug: I kind of prefer everyone looking in the same direction.

Interviewer: The front?

Doug: And maybe the sides...like, maybe a few TVs on the sides [of the room].

Interviewer: Do you think it's important that everybody faces the front?

Doug: I think it helps.

Interviewer: In what way?

Doug: Um, when people need to pay attention...because I notice if you're turned like [in the] opposite direction of the speaker, it's kind of hard to focus.

Observations from the field support Doug's comments, as I did not observe any instances where Doug chose to sit with his back to the center or front of the room (where the speaker was positioned) other than times when he was working in small collaborative groups on a specific task.

Several students noted that the arrangement of the furniture, both fixed (at the beginning of the semester) and mobile, could sometimes hinder their ability to receive course content when delivered via the LCD screens. For example, Olivia commented both during a classroom observation and in her interview that she had difficulty seeing the LCD screen she

was seated right next to when the fixed furniture was in the room during the first few weeks of the semester (see Figure 1.1). Five tables, each seating six students, were arranged in front of each of the LCD screens; Olivia noted that if she was in the seat closest to the wall and the LCD screen, then she was only inches away from the screen – too close to be able to see the screen clearly. However, after the mobile furniture was placed in the room, she pointed out that if a table was too close to an LCD screen, then she could easily pull the table a few feet away from the screen to improve her sightlines. Tyler commented as well on how being too close to a monitor could interfere with his ability to see projected course content; however, he perceived that the mobile furniture, as well as the fixed furniture, had an effect on how well he could see the screens. He stated, “if the tables are up against the wall though and you’re at the one closest to the wall, you kind of have to lean away from it, so it can be a little difficult to see the whole thing.” When considering these two student responses, it is interesting to note that Olivia expressed that she would move the furniture to make viewing the screen easier, which suggests a certain level of comfort she felt in the space, while Tyler did not. In other words, students’ varying degrees of comfort with and the agency they assert in the space can play a role in their learning process.

Other issues regarding the LCD monitors and the main projector were also discussed by the students. Technical issues with the LCD screens, such as a student’s inability to connect her computer to the screen, could sometimes slow down group work. While several of the screens in the class were outfitted with output dongles for students who had Mac laptop computers, these dongles were not universal and did not always fit the varying kinds

of Mac computers students owned. I observed several instances during field observations where, during small group work, a student could not connect his/her Mac computer to the LCD screen; however, the group appeared to adjust quickly and remedied this issue by having another student connect to the screen. Doug commented that he noticed that some computers did not “sync up” with the LCD monitors; and Olivia pointed out that when hooking a computer up to an LCD monitor she would sometimes have to adjust the resolution on the computer, which she said “took up class time” and slowed down group work. Several students noted that issues regarding the main projector were related to the quality of the image (it was “fuzzy”) due to the glare from the sunlight that was cast into the room, which hindered students’ ability to engage with course content projected by the instructor or teaching assistant.

Reifies Hierarchical and Social Territories

A prominent theme that emerged from the data related to RQ2 was that students perceived specific areas or seats in the classroom as belonging solely to the instructor, particular peer groups, or themselves. While students were allowed and encouraged by their instructors to arrange the furnishings and sit where they felt most comfortable, hierarchical and social territories materialized based on where students chose to position themselves in the room.

The data collected from both student interviews and my field observations suggest that students perceived certain areas of the flexible classroom as “teacher space.” Interestingly, several students identified these areas – primarily the front and center of the

room – as undesirable places to sit. For example, when asked where his least favorite place to sit would be in the classroom, Matt indicated that he would not like to sit at the front of the classroom and pointed out a spot on the room floor plan near LCD #1. When asked why, he admitted:

I guess you feel like the teacher's on top of you, watching you, and you would have to turn around if somebody else behind you had something to say. And I guess with computer access, I don't always stay on task, so I would have to watch out for that.

Here Matt expressed concerns about having his personal space invaded, as well as being monitored by the instructor. Based on my field observations, Matt (who preferred to sit in the center and back of the room) demonstrated himself as an active participant in class who appeared to be on task. Interestingly, I did not observe any instances of the instructor or teaching assistant reprimanding a student for using his/her computer for non-academic purposes while in the flexible classroom. However, based on Matt's comments, he had the perception that he might be “caught” or corrected if he strayed off course. Similarly, Brad also expressed concerns about sitting at the front of the classroom. He noted that he would not like to sit in front of the “teacher’s desk” (he indicated the lectern at the front of the room on the classroom floor plan), stating that that area was “Just too close to the teachers.” When asked why, he responded, “I feel like they might be watching me all the time, critiquing me if I’m doing something wrong.” While Brad did not indicate that he had concerns about being caught off task, we see he has a fear of being judged or criticized if he is situated in the teacher space. Laura also indicated that her least favorite place to sit would be at the front of

the room by LCD #1. She admitted that in this area, “I just feel like I’m right on top of the instructor.” Laura stated that her preferred spot in the room (in the back by LCD #2) allowed her to see other people in the room, but her first concern was invading the teacher space. My fieldwork aligns with statements from the students above, as I did not observe them sitting in or near the classroom “front” (either by the lectern or by LCD #1). The map Laura arranged depicting her preferred layout of the flexible classroom also reflected her perception that there is a clear “teacher” territory. When given a blank floor plan of the classroom and a set of furniture cut outs (that represented all the tables and chairs in the space), Laura configured the room so that no furniture was placed at the classroom “front” by the instructor’s lectern (Figure 4.6).

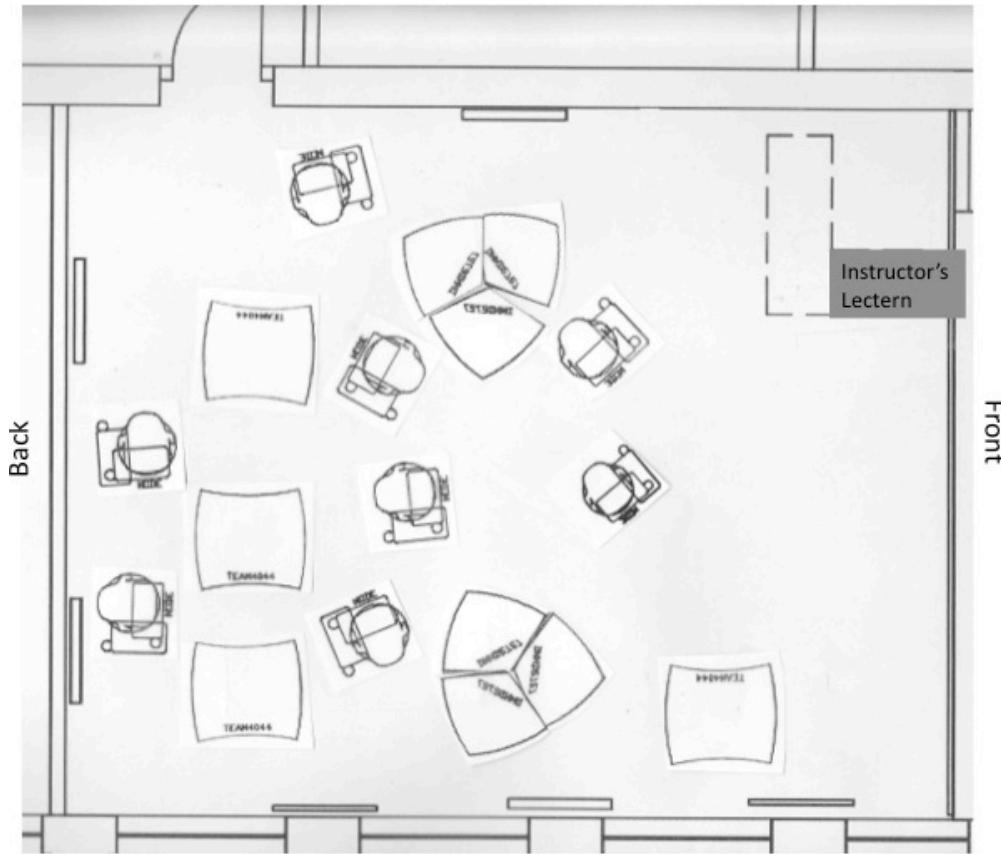


Figure 4.6. Laura's preferred layout of the flexible classroom, with no furnishings at the front of the room or near the instructor's lectern.

Matt designed his map to utilize more of the center of the room; however, his layout is very similar to Laura's, as it has no tables or chairs positioned at the classroom front (Figure 4.7).

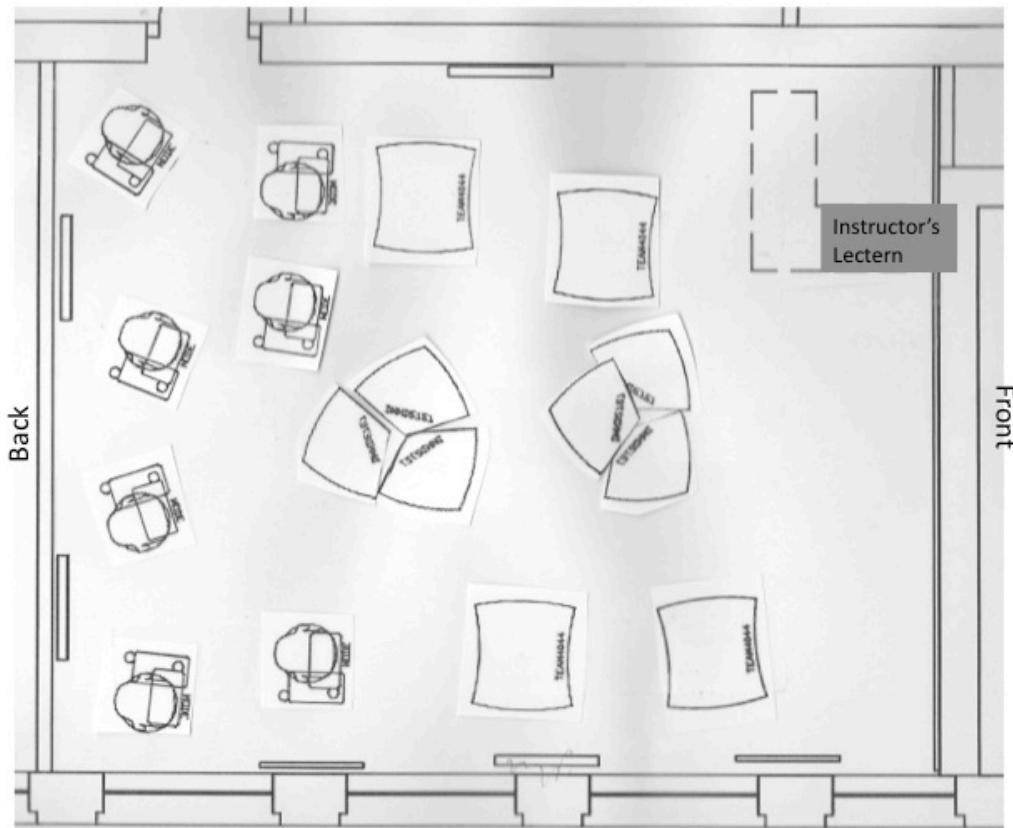


Figure 4.7. Matt's preferred layout of the flexible classroom, with no tables or chairs placed near the instructor's lectern.

Deirdre placed a few tables and chairs in the front corner of the classroom, but she steered clear of the space next to and in front of instructor's lectern (Figure 4.8). When triangulated with my field observations and students' interview responses, these conceptual maps further support the idea that students have a strong perception of the classroom front as "teacher" space.

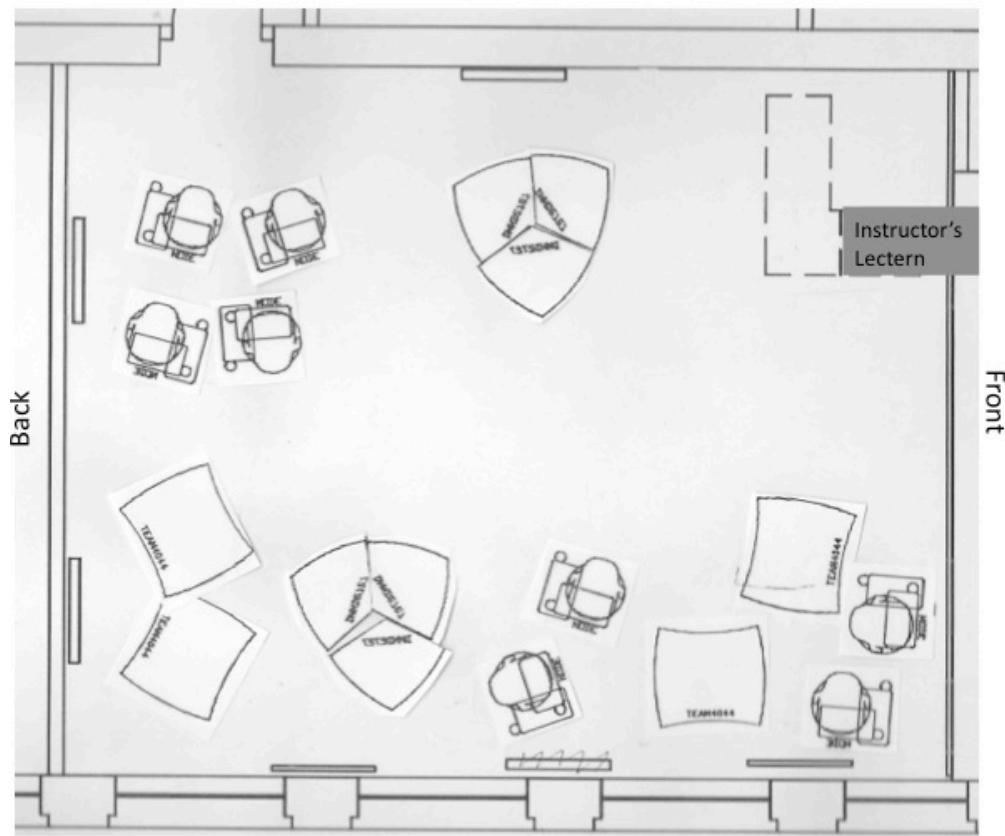


Figure 4.8. Deidre's preferred layout of the flexible classroom, where she included furnishings in the front, left corner, but avoided the space next to and in front of the instructor's lectern.

While the examples above suggest a negative perception of sitting in the teacher's space, one student noted that sitting in these areas could be beneficial. Doug, who self-identified as a weak writer (earlier, this chapter), stated that he would prefer to be in this teacher space for peer review workshops:

Interviewer: What about if your doing peer review? Would you have a preferred place to go?

Doug: Probably closer to the teacher's desk.

Interviewer: Why is that?

Doug: Um, we get the teacher's input.

Interviewer: So you're closer to the teacher?

Doug: Yes.

This example is particularly noteworthy because I did not observe Doug sitting near the front lectern (the “teacher’s desk) during any peer review sessions, even though he indicated that he felt sitting in this perceived teacher space would be helpful for him. I also observed that both the teacher and the TA moved about the space consistently for peer review; only on rare occasions would they station themselves behind the lectern during small group work of any kind. Thus, this example demonstrates the strong association Doug had with the instructor and the classroom front, where the lectern is located. Even though his instructors did not locate themselves in this position for peer review, and even though he never chose to sit in this area, his perception of the front as “teacher space” is deeply engrained.

The perception of a hierarchical teacher space was also indicated in several of the students’ maps of their ideal writing classroom. For example, when designing his ideal composition classroom, Matt designed a space that had a front projector and positioned the students’ tables and chairs away from this space. When asked why he did so, he stated that he thought the teacher would need room at the front of the space (where he located the projector screen) to “walk around and explain.” When designing her ideal classroom, Alison noted that the instructor would have a chair in the center of the room so students could see him; however, she also explained that having the teacher space in the center was necessary

because “sometimes you still need the formal part to make sure you’re actually working.” In her classroom layout, Alison demonstrates a perception that the center of the room is teacher space that can be used for both engaging with the class, as well as monitoring student behavior.

Several students noted that their preferences for seats in the flexible classroom were often influenced by where their instructors chose to position themselves when delivering content (a one-way transmission from teacher to the entire class). For example, Matt explained, “I guess you develop a favorite spot in the classroom based on where the teacher moves and what kinds of activities you do.” Olivia’s thoughts reflect Matt’s comment, as she pointed out that she believed some students migrated to the back portion of the classroom because her instructor needed to stand near the lectern to use the main projector. As discussed earlier in this chapter, students used the space to maintain personal space; as a result, social territories were reified in the flexible classroom. Olivia explained that once a seating pattern had been established in the space, particular spots belonged to certain individuals. When asked about why she gravitated toward the same seat or geographic area in the room, she said, “Maybe someone’s really, really attached to their chair or their spot in the class, so if you took that spot before they got there, maybe that would not be beneficial. It’s just a safe bet.” Olivia sees that selecting the same seat is a “safe bet” and a means of maintaining social territories in the class. She also noted that if her usual seat was taken, she would sit as close as she could to that spot and not venture out into other areas of the room because “that’s where other people sit.”

Interestingly, when asked about her personal seat preference, Olivia discussed her preferences in terms of social territory and the habits of others. Other students talked about social territory in similar terms, particularly as it related to specific peer groups that had been established in the class. For example, Deirdre admitted:

I feel who you sit with in your little pod is who you get to know because everyone's...separated. So I'm not going to go sit over there because I know who sits there. So I'm not going to get to know them because they have their group, [and] I have my group...So I don't feel that I really, like, intermingle with the class. We have assignments where we get together and stuff, but you're still just, 'We're doing an assignment – I'm not trying to be your friend,' kind of thing.

In this example, Deirdre, like Olivia, demonstrated a perception that choosing another seat would upset the social territories that had been instituted in her class. Additionally, she implied that she had no reason to socialize with individuals outside her group beyond the interaction that was required when the instructors assign groups. What is important to note here is that Deirdre, while somewhat shy, was always friendly and engaged in the groups she worked with, whether they were assigned or she was working with her usual group (with Alison and Meredith). However, this example reveals the strong social connection she felt to her usual group mates, as well as the location in the room that was their hub. Alison also made comments that align with Deirdre's thoughts on the how territories materialized in the space. Alison explained that the room allowed her to form strong connections with her group mates.

Interviewer: Do you think the room had any influence on the way you communicated with other people?

Alison: Yeah...because we have our groups – our tables – it gives you, like, the ability to talk to people and you have people there...it gives you a sense of – not community, but sort of...you have people that you kind of know what they're going to say and what ideas are going to be flowing...

Interviewer: And you think that that has something to do with the way the room is designed?

Alison: Yeah, because we have all the tables and everyone kind of has their – not their designated – it's not really cliquey, but it kind of is...And that's not a bad thing. I don't think it's a bad thing...we have where our comfort zones are, and I think the room helps set up our comfort zones.

From this example Alison appears hesitant to describe her social group as “cliquey” and the areas in the flexible classroom as “designated” for particular groups or individuals, yet she admits that these descriptions are relatively accurate and not necessarily negative. The “comfort zones” of which she speaks are both social and geographic in nature; since the class was given a great deal of agency to choose their own seats and groups, the students in the class quickly developed territorial perceptions of the space and only on rare occasions crossed those boundaries. For example, Tyler noted that during one of the last weeks of the semester he met “someone new” in class when he was assigned to work with him for a peer review workshop. While there were only 19 students enrolled in this class by mid-semester, from Tyler’s statement we see that he had not interacted with or even met everyone in class. When I asked him what he thought had prevented him from meeting this “new” student before, he replied, “Just being on the other side of the room because I think he typically sits

at one table.” Similarly, Steve (who characterized himself as shy) also demonstrated a perception that the back of the classroom could be an area of escape for shy students:

Well, if I have to think of something that would strike me as a negative [about the room], it would be that the same flexibility that kind of allows someone to get into the middle of [the room]... also kind of allows people to hide in the back. A lot of times they’re the ones that are going to be thinking about things a little bit more. They probably have a lot more to add to [the class].

While the excerpt above was coded and verified for this particular category, it is noteworthy that Steve’s thoughts imply that these social territories might also influence the extent to which some students chose to engage with the class. That is, the mobile furnishings in the room could allow a student to gravitate towards an area in the room where he or she felt most comfortable, which could be beneficial to learning; whereas this same comfort zone could be isolating and might potentially hinder the student’s learning.

CHAPTER 5: ANALYSIS AND DISCUSSION

The role of innovative classroom spaces has been studied from a variety of perspectives and disciplines, and several resources discussed in the review of literature in Chapter 1 of this dissertation highlight the impact a space has on student success and learning outcomes (Beichner et al., 1999; Bemer et al., 2009; Brooks, 2011; Foster & Gibbons, 2007; Gaffney et al., 2010; Hunley & Schaller, 2006; Melhuish, 2010; Nixon et al., 2008; Taylor, 2008; Whiteside et al., 2010). However, the results of this study add a new dimension to the research on learning spaces and shed light on users' perceptions of an innovative classroom design as well as their use of the space itself. The functions of the categories coded primarily illustrate that a flexible classroom can support a greater variety of pedagogical activities for composition instructors and can assist students in their writing and learning processes. In this final chapter, I interpret the data from Chapters 3 and 4 and discuss the implications of the results as they relate to larger issues of composition teaching and learning in a flexible classroom environment. I also discuss the limitations of this study, as well as possible directions for future research. This research suggests that a flexible classroom design can be a potential solution to dealing with the complicated social dynamics that often come with a class that does not readily participate as a whole. While the results overwhelmingly indicate that the users in this study preferred a flexible classroom over more conventional learning spaces, they also demonstrate that space, pedagogy, and social dynamics are intertwined and must not be considered mutually exclusive.

Addressing Varying Social Dynamics in the Flexible Classroom

As demonstrated from the categories that emerged from research questions one and two (Chapter 3), the flexible classroom space was frequently used to promote cooperative activities and was perceived as a tool that aided the instructor and teaching assistant in engaging students in the processes of writing. Data from the student portion of the study demonstrate uses and perceptions that primarily converge with the instructor data, as the students often used the space to cooperate in small groups and usually perceived the space as facilitating interaction with others. What is notable about these convergences is that the flexible nature of the space became a solution, combined with a cooperative learning approach, for a group of students that did not successfully operate or participate as a whole class. As recognized by the instructor, teaching assistant, the students, and myself as an observer, the group as a whole was reserved, but they were far more social and productive when working in small groups. The data suggest that the mobile furnishings and other resources in the room enabled the instructors to modify their pedagogical approaches midstream in order to encourage greater interaction and participation from students on a smaller scale. As the instructor noted (Chapter 3), the design of the classroom gave him “the flexibility to change things up on a fly.” He added, “I don’t wait too long before I break them up in small groups or something like that...So, the furniture definitely let’s me do that for sure.” As evidenced from both the instructor and TA interviews, as well as my classroom observations, being able to diverge from the original lesson to meet students where they were was critical to engaging this particular class in active learning activities that involved peer review and critical thought and discussion. As Laura and Matt both stated in Chapter 4

(under *Facilitates Interaction*), they felt more comfortable asking questions and contributing to conversations in their small groups due to the social connections they had with their group members. These results reinforce social constructionist learning theory, which emphasizes the importance of peer interaction and participation (Chism, 2006; Lave, 1991; Lave & Wenger, 1991), as well as the concept of conversation and dialogism as a construct for teaching writing (Bruffee, 1998; LeFevre, 1987; Lindemann, 2001; Nystrand et al., 1993). In addition, the results also align with Taylor's (2008) study of a studio classroom, and Beichner, Bernold, et al. (1999) and Dori and Belcher (2005) studies of the SCALE-UP model, which showed a greater sense of social cohesion among students. The data suggest, much like they do in studies in STEM education, that stronger social connections can be facilitated through a cooperative, active learning pedagogy combined with a nontraditional physical environment.

Here we begin to see how the instructor and student categories inform each other; that is, due to the flexible nature of the classroom, the instructors had more choices and could more readily change up their teaching approaches to encourage more interaction and participation. In turn, students reported feeling a greater sense of control and comfort in the space when they were given the opportunity to work with individuals they had come to know over the course of the semester. As evidenced by Steve's discussion about his struggle with Attention Deficit Disorder (ADD), the furnishings in the flexible room allowed him greater control over his environment, which helped him manage occasional feelings of anxiety. One implication from this interpretation is that through flexible design, we can potentially aid students who learn differently or have learning disabilities, as demonstrated by Steve's

discussion of his ADD. While many students choose to report their disabilities and disclose their need for accommodations to their institution's disabilities services department, many more choose not to do so when they transition from high school or their previous learning environments to the college setting. With this in mind, it stands to reason that a flexible classroom is benefiting more students than we might imagine.

Given the social dynamics of the class in this study, checking in with students (Chapter 3) became particularly important, as they demonstrated a reluctance to speak up and ask questions in front of the entire class. The instructor discussed the importance of checking in with students to monitor their progress during class activities; and as evidenced by statements made by Doug, Tyler, and others, students perceived that their interaction and communication with the instructor and TA was facilitated by the flexible nature of the space. Of particular note is that the classroom allowed the instructor and TA to sit with the students during group work so that they could encourage and facilitate discussions and dialogue between students. Again, these particular instructor and student categories inform each other. That is, when the instructor or TA used the space to check-in with students, students perceived the space as facilitating interaction with their instructors. With this arrangement, the instructors had the ability to physically be on the same level with students, seated at their tables, as opposed to always positioning themselves at the classroom front. These results align with Monahan's (2002) concept of a learning environment's "built pedagogy" – that is, spaces that do not allow for "certain movements of flows" can hinder learning, while spaces that are "flexible" encourage and "almost demand" appropriation ("Built Pedagogy" section, n.p.). The results also align with Scott-Webber's (2004) classification of learning

environments that support different behaviors. She characterized spaces that are more fluid and adaptable, support collaborative, creative, and iterative processes as Environments for Creating Knowledge (ECK); on the other hand, Environments for Delivering Knowledge (EDK) are typically characterized by a layout where a presenter or authority figure transmits information from a central location in the space (usually the front). Based on her system of classification, the flexible classroom falls into the category of an ECK, as the data suggest this design supported collaborative peer review, iterative writing processes and activities for students, and gave the instructor the ability to position himself away from the classroom front, although not completely (as noted in from the student data in Chapter 4). Having a greater sense of proximity and connection to the instructor could also be a benefit for students who do not consider themselves strong writers, as demonstrated by comments by Doug, where he noted that the flexible space was particularly appropriate for English because he needed more “one-on-one” attention when he was in class. Such a space can be beneficial to students who lack confidence in their writing, as they may not be willing to approach their instructor outside of the classroom; therefore, having a learning space that is more mobile and comfortable can allow student and instructor to interact in more meaningful ways. While both the instructor and students noted that, at times, the space could be crowded and disorganized, they used the space for collaboration and perceived it as having an overall positive impact on their ability to connect with each other.

Comfort versus Comfort Zones

As seen from the results in Chapter 4, students used the flexible classroom space to maintain the social groups and personal territories they established in the class several weeks

into the semester. Students discussed in their interviews and demonstrated during classroom observations that they liked having the stability and consistency of sitting with the same individuals, as well as sitting in their “normal” areas or seats. As Alison noted in her interview, sitting with her regular group added to her social comfort in the room. Alison also pointed out that the flexible classroom helped students “set up” and maintain their “comfort zones.” When given a choice, students worked with the same individuals and did not go outside these social comfort zones (and sometimes did not veer from their geographic comfort zones) unless they were assigned a person or group to work with by the instructor or teaching assistant. Due to his sensitivity to students’ preferences for working with particular individuals, as well as their preferences for specific locations in the room, the instructor chose (most of the time) not to be prescriptive with assigning groups (Chapter 3). Cautious of being overly authoritarian or too directive with the class, the instructor usually opted to let students choose their cooperative groups. However, he also noted that having students change their positions in the classroom, “to change things up a little...could only be a good thing.” Here the instructor demonstrated an awareness of his students’ social and geographic comfort in the space, yet he also recognized the potential benefits of having them sit in different areas to facilitate interaction with others. Based on the comments from students, they felt both safe and comfortable in their ossified groups, and the instructor felt both safe and comfortable letting them make their own decisions about where they sat and with whom they worked. In this sense, both the instructor and the students contributed to creating a safe environment within the small groups in the class.

While creating this sense of safety is critical to any classroom environment if we want students to be comfortable sharing their ideas and writing with their peer groups, Boys (2011) pointed out that while a learning space should be “safe,” it should not be just a “comfort zone”:

It is where students can feel able to take risks and deal with uncertainty, as an essential pre-condition of learning. They need to know that their fellow students are also experiencing difficulties, that mastery of threshold concepts can require a ‘letting go’ of what they already ‘know’, and that learning involves much ‘looping back’ and repetition, that it takes time (p. 43)

Boys recognized that students might not be challenged to take risks, and thus engage fully in the learning process, if they are not challenged to move beyond their comfort zones. Provided we are fostering safe learning environments, students stand to learn more when they work with a variety of individuals and on a variety of activities, which can often involve moving and situating themselves physically in the classroom in different ways. In other words, personal growth and learning can often be the result of being in unsettling physical and social positions. For example, students who work with the same individuals during peer review may get the same or similar reading on their work. A student who moves around and sits in another part of the room may have different insights on a paper and can offer another perspective. As Composition scholar Donald Murray (1979) wrote, “I’m uncomfortable when my students are uncomfortable, but more uncomfortable when they are comfortable” (p. 15).

Additionally, students might also feel more comfortable participating in whole class discussions if they, on occasion, sit in different areas or work with other students in the class. As discussed in Chapter 4, Olivia recognized the benefits of working with different individuals when she noted that groups would be forced to rotate to work with other people in her ideal writing classroom. She explained that this forced movement would allow students to get different perspectives on their work (“New people have different brains”) and could have a positive impact on the writing process. Olivia’s awareness supports the ideas of Composition Studies and Human Geography scholars who have argued that through movement one may experience learning and change (Mirtz, 2004) and that “ideas develop out of movement” (Tuan, 1977, p. 52). Her ideas are also reinforced by Bakhtin’s dialogic principle (Nystrand et al., 1993) and theories that relate writing to conversation (Bruffee, 1998; LeFevre, 1987; Lindemann, 2001). However, we see from the categories that emerged from research questions three and four (Chapter 4) that students used the space to maintain social territories and perceived the space as manifesting hierarchical and social areas. Student comments during their interviews, as well as the maps they designed as their preferred layout of the flexible classroom (Laura and others) demonstrate the point that students sensed the front of the room as “teacher” space. Their perceptions reflect Tuan’s (1977) argument that architectural space can communicate a particular “social order” (p. 116). These participant perceptions were very strong, as evidenced by comments made by Deirdre and others, who saw certain areas of the room as belonging solely to specific individuals or groups, including the instructors. Even though some students (for example, Alison, Tyler, and Olivia) commented that they liked and even welcomed working with students they did not know or

did not know very well in their class – which also demonstrated their feelings of safety in the class – they held fast to their established groups and/or preferred geographical areas in the classroom. These behaviors reinforce the ideas of Mirtz (2004) who pointed out that students use aspects of the environment (such as furnishings) to control their level of engagement in the classroom.

Based on the results from the instructor portion of this study, the study also suggests that the space could offer instructors the opportunity for reflection based on what the instructor perceived as unsettling experiences in the classroom. For example, the data from Chapter 3 that addresses the instructor's uncertainty about where to position himself in the space when the furniture was arranged in a different way resulted in the instructor rearranging the layout in later classes to better support the interaction he sought with students. This reflective practice, as well as others discussed in Chapter 3, demonstrates that instructors and students can both benefit from the productive unsettling that they might experience in a flexible classroom. For instructors, the implications from this unsettling can result in more effective teaching practices and increased interaction with students during class time.

This study suggests that through design, we have the ability to make a writing classroom comfortable for users, as demonstrated by the categories that students both used the space to manage physical comfort and perceived that the space afforded comfort. However, the data also implies that the space can become a comfort zone where students become rooted in a particular physical area or tied to a specific social group. These results

reinforce Boys' (2011) argument that having a flexible space "does not automatically mean that students will feel empowered or that equipment will be moved... it depends on the conventions and assumptions – the ordinary social and spatial practices – that participants bring to a space, the activity and the context" (p. 129-130). Such rootedness could impede students in participating in the group writ large and hinder the benefits they might gain from exchanging ideas and co-constructing knowledge with their peers. As a result, this study reinforces Boys' (2011) idea noted above regarding safety versus comfort in a learning space; that is, a flexible classroom space should be comfortable, but not a comfort zone. Varying pedagogical approaches and encouraging students to move outside their social and geographic comfort zones can potentially increase their willingness to take risks and have more meaningful conversations about their writing.

Space, Pedagogy, and Social Dynamics: Not Mutually Exclusive

As evidenced by the data from both the instructor and student portions of this study, it is clear that the flexible space, the instructor's pedagogy, and the social dynamics of the group must be considered together when examining both uses and perceptions of the space; in other words, each of these factors informs the other, and they cannot be isolated or treated as mutually exclusive.

While the instructor perceived that aspects of the flexible classroom could sometimes be a distraction to students, he demonstrated an awareness that multiple factors could be attributed to students' distraction and their willingness to participate as an entire group (Chapter 3). In his introductory interview, the instructor described his teaching style as being

centered on classroom discussion and dialogue. However, when it became clear that the class could be reluctant to participate as a whole group, the instructor modified, frequently spontaneously, his approach in order to engage students more in the learning process. Despite his (and the TA's attempts) to facilitate whole-class discussions, there were times when it was clear that the social dynamics in the class were difficult to overcome. It is important to recognize that the instructor discussed that he did not have the same challenges in the two classes he taught after the one observed for this study. That is, the social dynamics were different in his other classes that also met in the flexible classroom, and as a result, he could engage them in whole class discussions and activities with greater participation. Even though he was covering the same course content and assigning the same projects, he modified his pedagogical approach based on the personality of each of his classes more than he did based on the resources in the space. The instructor also noted that his later classes seemed more comfortable in the space, as they moved the furniture into different configurations frequently and with little to no encouragement. These results (Chapter 3) suggest that the social dynamics of the class can influence one's perspective and teaching practices and must be factored into the examination of the role of the learning space itself. Recent research on the comparison between an active learning classroom and a traditional classroom revealed that "different learning environments affect teaching-learning activities even when the instructor attempts to hold these activities constant" (Whiteside et al., 2010, p. 6). However, the results from my study add a new dimension to the research on learning spaces, as they suggest that teaching-learning activities can also vary based on the collective personality of the group even when the instructor teaches in the same space. While several active learning classroom

studies included control groups in their sample which included students who had class in more traditional spaces and the same instructor (Beichner et al., 1999; Brooks, 2011; Dori & Belcher, 2005; Hunley & Schaller, 2009; Whiteside et al., 2010), this study focused solely on one instructor and one particular class. However, the instructor's comments suggest that even though the space remained constant, one's experience in it can vary based on the individuals who populate the classroom at different times. These results reinforce Massey's (2005) theory that place is a product of interrelations and is always under construction; Massey (1994) argued that places are "unfixed, contested, and multiple" and have no singular identity or history (p. 5). As a result, places are socially constructed. Based on the instructor's discussion of the different dynamics in his classes, it is evident that the design of a learning space and its material affordances cannot solely determine the human experience within it. While resources in the flexible classroom like mobile whiteboards and furniture helped the instructor engage an otherwise quiet class in small group activities, the personalities who occupied the room had a significant impact on how it was both used and perceived. These results also align with Melhuish's (2011b) conclusions from her ethnographic study of several post-secondary learning spaces, where she argued that "spatial and social interactions cannot be artificially separated" when considering user perceptions (p. 90).

The results from the student portion of the study also suggest that other factors contributed to how the classroom was used and perceived. As noted by several students in Chapter 4, the small class size allowed them to get to know and become comfortable with several other students compared to their experiences in large lecture halls. Students like Olivia and Brad (among others) believed the smaller class size in addition to the flexible

design facilitated interactions with their peers and instructors in meaningful ways. When particular pedagogical approaches are added to this equation, such as the instructor and TA's frequent use of cooperative learning activities, we see that space, social connections, and teaching techniques can influence and inform each other. It is also important to recognize that student responses, as well as those for instructors, might differ with an instructor who does not incorporate cooperative learning activities as frequently or to the extent that the instructor did in this study.

The instructor suggested that lack of participation from his students during whole-class discussions could also be related to his own pedagogical approaches. When reflecting on his use of the room throughout the semester, the instructor pointed out that having access to the resources in the flexible classroom (specifically the mobile whiteboards) inspired him to think about how he would use the fixed, wall-mounted whiteboards that are in the program's more traditional rooms. The instructor's belief that he did not use the flexible classroom as effectively as he could have (Chapter 3) is another marker that the learning space and a teacher's pedagogy are not variables that can be isolated from one another. These examples of the instructor's reflective practice demonstrate his awareness that the space alone cannot be the sole determinant of a lesson's success; that is, the pedagogical choices instructors make can help them leverage the tools they have access to (in this case, using existing resources in a room, such as wall-mounted whiteboards) in a learning space, which could potentially increase student engagement and participation. The instructor's reflections regarding how he could use the resources in the space more effectively and creatively in the future also suggest that he recognizes that his teaching can be impacted by the space, but how

he utilizes that space is dependent on the teaching activities and techniques he employs. As discussed in Chapter 3, the instructor made the specific point that while the flexible classroom can support cooperative and active learning teaching strategies and engage students, it is the pedagogical decisions we make as teachers in the space that can make a difference in teaching and learning:

...it's still just a classroom, you know what I mean? It's not like the classroom teaches itself...it's not that we really do things for the most part in this classroom that you can't in other rooms. A lot of the times you can just do them more easily in this room. I mean, you can still get students to work in groups and be engaged, and you can still force furniture around a little bit in other rooms. You can do a little bit more right away in this room. There's a lot of things you can still do. You can just do it more – do it better in this room, I think, more easily. And to me – for me, at least with my teaching style – sort of being able to adjust things while they're happening is – that's where this room really kind of works...

Similarly, the TA noted that the classroom, specifically the mobile furniture, enabled him to do the kinds of student-centered activities he preferred. Their comments demonstrate that while the space is something that can inspire our thinking about teaching and can make particular activities easier to facilitate, it is not the single factor that determines success. Boys' (2011) argument that "learning activities are always about more than the space; and space is always about more than just the activities that go on in it" (p. 85) is applicable here, and it can also be applied to both learning and teaching; in other words, *teaching* activities

are also “always about more than the space.” The instructor’s teaching philosophy, comfort levels with the material affordances in the room, and relationship with the students in the class can all potentially play a part in how a learning space is both used and perceived. These results further the idea that we should be careful not to attribute sole agency to the learning space itself and its impact on teaching and learning (Brooks, 2011). As Boys (2011) argued, “we cannot separate out the participants, the activities and the contexts in analyzing how space works; to do so is to over-simplify and potentially misunderstand” (p. 129). “Space and pedagogy,” as Hunley and Schaller (2009) argued, “are undeniably intertwined” (p. 34), and we are reminded by Carpenter, Valley et al. (2013) that “We should not view pedagogical approach as isolated from learning space design” (p. 316). The immediate implication of this study is that it can inform the kinds of research questions we ask about the role an innovative classroom plays in teaching and learning processes, as well as how we design learning space assessments and studies; that is, if the space, pedagogy, and social dynamics are connected, we must include questions that address these variables in our research design. By itself, an innovative classroom will not improve student learning or engagement, nor will it be the sole determinant of effective, active learning teaching practices. As the instructor in this study stated, “it’s not like the classroom teaches itself.”

Scope and Limitations

While this study has notable implications regarding flexible classroom design, as well as teaching and learning in these environments, it also has limitations. It is important to note that the methodology chosen for this dissertation was qualitative in nature and offers an in-depth view of one writing class situated in a flexible classroom; therefore, the results are not

meant to be generalizable. Due to the small sample size (one writing class of 19 students and one instructor and teaching assistant), the study is limited to the uses, perceptions, and experiences of these individuals in one institutional context. With replication, however, the categories from this study might reveal a typology of uses and perceptions of both instructors and students in a variety of disciplines and at different institutions.

Since I limited my scope to one section of the instructor's classes, it stands to reason that the data collected from the courses the instructor taught during the same or subsequent semester might vary, as he described the dynamics in his other classes as markedly different in regards to whole-class participation. While this study examines one class through a magnified lens, the results may be relative to this particular instructor and these specific students. The results may also be limited to the experiences relative to students at this large, public, southeastern university, which follows a writing-in-the-disciplines approach to academic writing and research. The student population at this institution, as well as in this specific class, is relatively homogenous (see Chapter 2), with the majority of the students Caucasian, native English speakers. A similar study conducted in another instructor's classroom with another group of students or conducted at a dissimilar institution could yield different results.

While the relatively short-term (one semester) nature of this study offers insights on how one specific group both used and perceived the space, a longer study examining instructor use and perceptions could be beneficial; a more longitudinal approach would offer the researcher greater opportunities to observe the instructor experimenting with the

resources and how that experimentation might impact his/her teaching. Studying the same instructor teaching different classes (either in the same semester or over the course of several semesters) could potentially shed more light on the role a flexible classroom plays on pedagogical choices. Given that the design of the flexible classroom was new to the institution's First-Year Writing Program and was being used by the instructor for the first time, it is possible that the results might differ had the instructor had more teaching experience in the room. Triangulating this data with the results from data collected via other methods, such as surveys and interviews conducted with students and teachers in other classes who have also used the space, is recommended; doing so adds depth and breadth to the research on learning spaces and gives stakeholders a larger picture of the varying roles a flexible classroom can play in the area of Composition Studies, as well as other disciplines.

While an ethnographic approach allowed me to capture individual voices in this study, the method also has its limitations. As a participant observer, I made efforts to participate in the class and interact with students in the hopes that they would not view me as an authority figure or outsider. Although some students would, on occasion, sit with me at a table on their own accord, I noticed that this was the exception and not the rule. In turn, when observing the class early in the semester, I would frequently choose a seat at a single tablet-arm chair (versus a group table) so as not to be overly obtrusive to students. During most class meetings, students sat away from me and with their usual group members; as a result, their awareness of my presence could have affected their behavior in the class. At one point in the semester, the instructor also casually indicated that he believed he was inadvertently explaining his assignments and activities in greater detail during class for my benefit, which

also indicates that my presence could have influenced his actions. If I were to perform the study again, I would sit with students at their group tables earlier in the semester.

Another factor that could have affected the results of this study is the addition of the mobile furniture and whiteboards to the space several weeks after the semester started. When the semester began, the space still had fixed pods that sat six students each (Figure 1.1). Since students had used the fixed furniture in the room for several weeks, it is possible that having this comparison could have influenced their perceptions of and opinions about the room. However, having this comparative experience gave me the opportunity to learn more about students' preferences and comfort levels with the fixed versus the flexible furnishings. For example, several students noted that with the fixed design, several seats were positioned so close to the LCD screens that they could not clearly make out the content being displayed. Such information is useful when we consider the design of future classrooms, whether they are fixed or flexible.

Compared to the four interviews that were conducted with the instructor, the teaching assistant was interviewed once (after the semester ended). This decision was initially made based on the fact that the TA taught the class on his own for a limited time (the last three weeks of the term). However, if I were to conduct a similar study that included a TA, I would plan for additional interviews in order to gather more data regarding perceptions of the space. As evidenced from the results in Chapter 3, the instructor's use and perceptions seemed to evolve over the course of the semester based on his growing level of comfort with the resources in the classroom. Additional interviews with the TA could shed light on this

evolution of perceptions and could also offer an opportunity to explore differences in pedagogical approaches such as those influenced by generation, teaching philosophy, and prior educational experiences.

Conclusions and Suggestions for Future Research

The results from this study reveal that continued research is needed to understand better the role a flexible classroom design can play in higher education writing classrooms, as well other disciplinary areas. Given that this study was conducted over one semester, more research is needed on how instructors use and perceive a flexible writing classroom over time. It stands to reason that if instructors have more experience in a flexible room, then more knowledge can be gained regarding the pedagogical choices that are being made and the factors that are influencing those choices. The instructor noted that he considered time a significant factor in how well he utilized the flexible classroom space; in other words, thinking critically and planning lessons that capitalized on the resources in the space took time and attention. His thoughts raise an important point about planning active learning lessons that engage students in the writing process, which can be a challenge given the limited time and resources of many writing instructors. However, Boys (2011) argued:

if our aim is to help students to learn *how to learn* in this way (that learning is about being collaborative, creative, interactive and lateral) then we may in fact need to develop a highly structured series of developmental activities. Whether these are considered formal or informal is actually of little consequence. What matters is whether the teaching and learning is of value, and has an effective impact. (p. 27)

With this in mind, assessing and studying professional development programs for teaching in a flexible writing classroom could inform how we prepare teachers for working in these innovative spaces. As Hunley and Schaller (2009) noted, “institutions that assess the use of learning spaces on their campuses must also ascertain pedagogical practices that yield optimal learning” (p. 34).

Since the instructor in this study noted that his experiences with his three sections of ENG 101 differed based on student personalities, studying an instructor’s experiences teaching the same writing course in the same classroom to different classes has the potential to shed more light on how social dynamics impact students’ use and perceptions of the flexible space, as well as the pedagogical choices instructors make. Additional research on instructors’ specific use of the space could also reveal more about how the space encourages or discourages active learning. Isolating and studying how specific targets are used in the space, such as the LCD screens or mobile whiteboards, can shed more light on the kinds of activities instructors assign that engage students actively in the learning process. More information about how the material affordances are used in the space can also influence and inform future decisions about classroom design, such as including low-tech resources like mobile whiteboards in more traditional spaces and adding remote technologies to instructor lecterns to de-center the space further. For example, how might uses and perceptions of the space change if instructors have a way to operate the digital equipment from any spot in the room versus only at the a control panel positioned at the classroom “front”? It is important to note that this ethnography was the first project conducted in the First-Year Writing Program that explored the impact flexible classroom design had on its users. As a result, this work has

been the catalyst for an additional research project in the program that are examining instructor use and perceptions on a wider scale; data are being collected via interviews from all instructors who teach in the flexible room each semester, and instructors who have taught in the space previously are interviewed again to ascertain any change in their attitudes or behaviors over time. The conceptual mapping exercises for this study have also been adopted and applied in the program in another research project in order to gain a better understanding of design elements that writing instructors find beneficial to their teaching.

This research presents a number of avenues that deserve further examination in regards to how the space impacts learners. Both the instructors and students in this study made numerous references to the importance of mobility within the space, which allowed them greater opportunity for interaction with each other, increased control, and added comfort. The movement that the space afforded also led the participants to discuss specifically how the space could be freeing, and at times, distracting. With this in mind, tracking the users' movements in the space, as well as their motivations for movement, could reveal data that could influence the design and implementation of future flexible learning spaces. For example, the results of this study have had a significant impact on the redesign of another classroom in the First-Year Writing Program. For this new space, the research and design team (of which I am a member) incorporated data from this dissertation to design a writing classroom that is decentered further to support and encourage more active and engaged learning. Continued research on the original design that was studied for this ethnography, in addition to research on the modified design (to be launched Fall 2013), gives

researchers the opportunity to explore varying experiences and attitudes in these learning environments.

Given the positive response to the resources in the classroom, particularly the mobile whiteboards, a specific area of interest for my future work is exploring the concepts of “productive distraction” and “play” in the space. The instructor specifically noted that he believed that the whiteboards gave some of his students a creative outlet and added to their engagement in the class. Several students also noted they preferred the mobile whiteboards for several reasons, including their tactility and mobility. The instructor also perceived that his students generated more ideas when using the whiteboards versus typing on their own computers. Therefore, I would like to examine the use of this resource in greater detail in hopes of learning more about how this low-tech tool can encourage writers of varying abilities and learning styles.

Based on my interview with Steve, as well as my own teaching experiences with students with disabilities, I believe a fruitful area of research on learning environments lies in exploring how students of varying abilities respond to a flexible classroom. Steve shared that the ever-changing layout of the space gave him visual and geographic variety, which in turn, helped him manage his Attention Deficit Disorder (ADD). Other students (who did not self-identify as having a disability), such as Doug, also commented that the mobility of tables and chairs allowed him to have control over his movements in the class. These results suggest that for some students, mobility and variety in a classroom can add to their engagement and productivity. Empirically studying how students with ADD or other learning differences

respond to a flexible classroom gives us the opportunity to better understand their learning processes in composition (and other areas) and design both spaces and lessons that support their needs. However, we must be careful not to attribute the preferences shared by Steve (and others) to all learners. For example, some students who have sensory disabilities, such as visual impairment, might find a flexible classroom design difficult to navigate since the layout is subject to frequent change; similarly, a student with a hearing impairment, as noted in Taylor's (2008) study, may find following the speaker in a flexible space a challenge. In addition, students who are neurologically diverse or have anxiety disorders may not have positive responses to an environment that is in a constant state of flux. As such, we should include a diverse population in learning space research and explore how Universal Design concepts (Connell et al., 1997) could be incorporated to make flexible environments accessible to all potential users. While a flexible classroom has the potential to meet the needs of a variety of learners, it might also hinder learning and engagement for others. As Skill and Young (2003) argued, "The challenge is to design learning spaces that do not simply accommodate the need for diverse learning approaches but embrace, empower, and sustain learners of differing capabilities and interests" (p. 24). Due to the questions that have been raised from this study regarding non-homogenous student populations, a research team in the First-Year Writing Program is conducting a qualitative study in one section of the institution's composition course that is expressly designed for non-native English speakers to better understand how students from varying linguistic and cultural backgrounds respond to a flexible model. In addition, the team is also exploring grant opportunities to expand this research to examine the flexible model for writing in institutional contexts that work with

other diverse student populations in the immediate area, such as community colleges and historically black colleges and universities (HBCUs).

Another avenue for research that was prompted by this study is exploring what the instructor called “semi-public” writing and students’ comfort levels projecting their word-processed work on large display screens. While the instructor perceived students composing and sharing their work on the LCD screens as effective, the data presented in this dissertation suggests students did not prefer using this tool when given an option. As evidenced by the comments made by Deirdre, Tyler, and others (Chapter 4), some students noted they felt self-conscious when their writing was displayed in this larger format; however, they did not seem to have the same reservations about using the whiteboards, which were larger than the LCD screens and just as visible (if not more so) in the classroom. These results demonstrate a need for deeper research into students’ preferences so that we might learn more about their discomfort with composing and sharing their writing in this way. In researching learning spaces, Boys (2011) suggested:

We need to explore how different learning spaces can make participants (tutors as well as learners) feel safe or uncomfortable, and the impact this can have on their learning. If a space is very ‘recognisable’, for example, a lecture theatre, then is it likely that students will fall into standard assumptions about their ‘place’ as a passive rather than an active learner, and may in fact prefer such a location, since it represents what they already know. On the other hand, the strangeness of having ‘standard’

routines shifted, without clear alternative rules being offered, may undermine confidence.” (46)

Studying the discomfort students experience in a flexible classroom can help us better understand the educational and cultural backgrounds from which they come. Through this understanding we have the opportunity to design writing classrooms and activities that orient them to the kinds of collaboration that may be required of them in their chosen fields of study and in their later professions. Likewise, it is also important to explore how a flexible classroom might also be unsettling for instructors. Greater understanding of this discomfort gives program and university administrators insight on the teaching practices of their instructors, and it also opens the door for productive and constructive conversations about active learning strategies and the most effective ways to engage twenty-first century learners.

While the focus of this research was on one first-year writing class, the conclusions and implications are transferrable to other contexts. Just as this work was informed by Learning Space studies of users in STEM education (Beichner et al., 1999; Dori & Belcher, 2005; Gaffney et al., 2010) and Library Science (Foster & Gibbons, 2007), it revealed information that can make explicit contributions to these fields, as well as other subject areas taught on college campuses. The main theoretical contribution of this study is that space alone is not *the* answer to engaging students in higher education settings; it is, however, an important variable in that equation. This research sheds further light on the importance of having learning spaces that are physical manifestations of not only the active learning pedagogies that are encouraged and widely practiced in Composition Studies, but that also

reflect the larger goal of the academy, which is student learning. If we accept the contemporary learning theory that students are not vessels waiting to be filled, but should instead be active participants in the construction of their own knowledge, then the design of higher education learning spaces should embody these ideas. A flexible classroom design can communicate the message to students that in this space, we want them to do more than just listen; we want them to create, to dialogue, to debate, to move others and to be moved in return. In the same way it speaks to students, it also signals to instructors to step out from behind the lectern and make students and their interactions with each other the center of the classroom.

However, innovative design, particularly for classrooms, is not a universal remedy for promoting active learning. As Boys (2011) noted, a learning space should be viewed “as always in partial interaction with the practices that take place in it, and never separate from the perceptions and experiences of its occupiers” (p. 121). Instructors who teach in these spaces should be willing to reflect on their own teaching practices and recognize that the pedagogical choices they make play a critical role in how the space is both used and perceived by all users. By designing and implementing more flexible learning spaces, colleges and universities can offer students face-to-face, experiential learning opportunities that cannot be achieved in online instructional formats. With the proliferation of online courses offered by for-profit institutions, as well as the development of massive open online courses (MOOCs), the academy must consider ways to distinguish itself so it offers students an active-learning experience they cannot get anywhere else. Flexible classroom design is an

important component in meeting the needs of twenty-first century learners and securing the future of brick-and-mortar higher education campuses.

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APPENDICES

Appendix A: Instructor Interview Questions

Instructor Interview 1:

1. How long have you been teaching composition? (for TA - how long have you been studying composition?)
2. How would you describe your teaching style?
3. What do you think is the most important thing to impart to students about writing?
4. What kinds of collaborative activities do you assign in your writing classes?
5. How do you decide when a collaborative activity is more appropriate than a work-alone or instructor-led activity?
6. Can you tell me about a time when you were in a classroom where the layout/design didn't support your needs or inhibited your teaching? How did you handle that situation?
7. If you could design your ideal classroom for teaching writing, what would it look like? What resources would it have?
8. How does the layout you described in the above question best support your teaching style?

Instructor Interview 2:

1. Now that you've had half the semester with them, how would you describe this class?
 - a. What were your initial impressions?
 - b. Have those changed?
2. How would you characterize your relationship with this class?
3. What were your initial impressions of the new furniture/whiteboards?
4. Now that you've been teaching in the room with the new furniture for about a month, what are your impressions of the furniture?
5. How would you rate your comfort level with the new furnishings?
6. How comfortable do you think the students are with each other in this class? What do you think contributes to their comfort level?
7. How have the new pieces in the room affected your lesson planning?
8. How has the new furniture affected your interaction with students? (Ability to see them, hear them)
9. How do you think the new furnishings/whiteboards have affected students? The class dynamic?

10. I noticed there have been a few times when you have given students the choice of moving around for group work (forming groups, moving tables), and they haven't moved. Why do you think this is the case?
11. Do you think anything has changed with the new furniture about how students are working together in peer workshops?
12. How important do you think it is that students work with different groups or people in the class? What could be/is gained or lost by working with different people?
13. Have you tried any new teaching techniques or approaches since the new pieces were added?
14. Is there anything kind of activity/lesson you'd like to try in the space that you have tried yet? Will you do it?
15. If I could change one thing about this class right now, it would be _____.
16. Do you think this change you described in the previous questions could be facilitated somehow by the space itself?

Instructor Interview 3:

1. How would you characterize your overall experience teaching in the studio classroom this semester?
2. How influential would you say the mobile furnishings were to your teaching? That is, did you find yourself teaching differently due to the flexible nature of the space?
3. Can you tell me about a time when you felt the flexibility of the classroom worked in a lesson you taught?
4. Can you tell me about a time when you felt the classroom environment didn't work for a lesson you taught?
5. How would you characterize the helpfulness of the digital technology in the space for your teaching? For the students' learning?
6. Can you tell me about a time when you or your students utilized the mobile whiteboards?
7. What was your favorite thing about teaching in the studio room?
8. What was your least favorite thing about teaching in the studio room?
9. How would you characterize your relationship with the students in this particular class? What do you attribute this relationship to?
10. What surprised you about teaching in the studio classroom?
11. If you were to teach in the studio classroom again, would you do anything differently?
12. If you could change something about the current design of the studio classroom, what would it be?

Appendix B: Student Interview Questions/Mapping Protocols

Experience Questions

1. What is your academic year?
2. Major?
3. Age?
4. How would you describe the flexible classroom to someone who has never seen it before?
5. How would you describe your specific 101 class to someone who has never met the class before? What is your class like? (people)
6. Do you prefer to sit with a particular person/people in class? Why?
7. What kind of table/chair do you prefer to sit in during class? (refer to sample furniture)
8. Can you tell me about a time when you felt physically comfortable in the classroom? Uncomfortable?
9. Can you tell me about a time when you moved the furnishings around to meet your needs?
10. Can you tell me about a time when the classroom/aspect of the classroom didn't work for an activity you were working on?
11. Can you tell me about a time when you used the LCD monitors in the class? What was that like?
12. Can you tell me about a time when you used the mobile white boards in class? What was that like?
13. If you are asked to take some notes/write in class and you are given a choice, would you rather use the mobile whiteboards or hook up your laptop to one of the LCD monitors? Why?
14. When you are following along/watching something that the instructor has projected, do you watch the LCD monitors or the main projection screen, or both?
15. What is your favorite thing about the room?
16. What is your least favorite thing about the room?
17. What has been your favorite activity you've done in class?
18. How would you say the classroom design affected your learning?
19. How do you think the flexible design influenced the communication you had with your instructor and/or TA?
20. How do you think the flexible design influenced the communication you had with other students?
21. If you could change something about the flexible classroom, what would it be?

22. How would you characterize your experience as a student in the flexible classroom?
23. What about having class in this classroom surprised you?

Conceptual Mapping Exercise: Design Your Own Classroom

If you could design your ideal learning space, what would it look like? Using the paper/markers provided, sketch out your ideal learning space (provide blank paper w/ markers, post-its, etc.).

Conceptual Mapping Exercise: Layout of Your Flexible Classroom

If you could arrange your 101 classroom in any way, how would you arrange it? Using the diagram and cut-outs, plan out your room (provide blank T126 diagram and furniture cutouts).

Conceptual Mapping Exercise: Preferred Spaces in the Flexible Classroom

(provide blank classroom floor plan and furniture cutouts)

1. Arrange/mark on the map where you prefer to sit when you first come to class.
2. Does your seating preference change at all for the following? If so, arrange the furniture and mark the map where you like to sit:
 - when the instructor/TA is teaching
 - during a whole-class discussion
 - if you are working on a writing assignment by yourself
 - if you are working on a collaborative (group) assignment
 - if you are doing peer review with your workshop group
 - If you are watching a video
3. Mark the spot in the classroom that is your favorite.
4. Mark the spot in the classroom that is your least favorite.

Notes

ⁱ The composite ACT score for the traditional classroom was 22.54, while the score for the ALC was 20.52, a difference of 2.01, $p < .05$.

ⁱⁱ Brooks pointed to the literature that cites ACT scores as a valid and reliable predictor of academic success for first-year undergraduate students, such as reports published by the ACT in 1998, 2007, as well as the work of Marsh, Vandehey & Diekhoff, 2008, Stumpf & Stanley, 2002, Wilhite, Windham, & Munday, 1998, and Ziomek and Andrews, 1996.

ⁱⁱⁱ English 100 is a four-hour course that counts as elective credits for students. Students are asked to take a self-assessment inventory to aid them in their placement decision.

^{iv} In the main library's common spaces, mobile whiteboards were provided for students to use in their studies and proved very popular.