A *CEA Forum* Roundtable

Reflecting on Teaching Experiences in the Lab: Challenges with Classroom Design

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In Cynthia Selfe's "Technology and Literacy: A Story about the Perils of Not Paying Attention," she advises that composition teachers "have to pay attention to technology" (96). Similar to Brittany B. Cottrill's discussion of issues of access, this reflective piece pays attention to another issue concerning technology, specifically focusing on computer-equipped classroom designs. Not only have I questioned the various ways that I use technologies in the classroom, such as blogs, wikis, and social networking sites, but I have also reflected on the advantages and disadvantages of computer-equipped classroom settings. Drawing heavily on Valerie Balester's "The Evolving Computer Classroom for English Studies," where she focuses on the effects of design on student learning, I have realized how my previous lesson plans oftentimes became difficult to manage in certain computer classroom environments. In this article, I share what I have learned based on my observations and teaching experience by first describing two computer-equipped classroom settings: University B (UB), a four-year, mid-size, rural, public university located in the Midwest, and University N (UN), a four-year, small-size, rural, private university located in the east. I discuss how both UB's and UN's classroom designs can affect teaching philosophies and ideologies. Finally, I conclude by reflecting on how teachers can

overcome the physical technological environment when design negatively affects their pedagogical goals and student learning.

Two Different Computer-Equipped Classroom Designs

Based on my observations and teaching experience, I have learned that classroom setting is an important factor to consider when planning instruction because classroom arrangement can either complement or derail pedagogical goals. My observation of UB's computer classroom and my teaching experience in UN's computer lab are examples of how classroom dynamics can affect a student-centered pedagogy and collaborative learning environment.

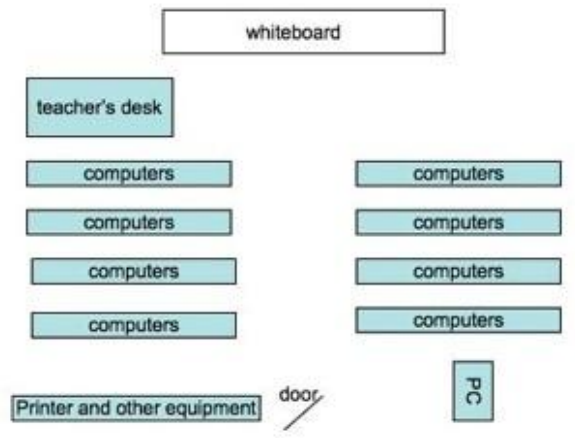

Figure 1: University's B

While observing UB's computer lab, I noticed that its physical setting is similar to the traditional, non-computer equipped classroom where students sit in rows. From the entrance perspective of the room, there are four rows with four computers in each, occupying both the left and right sides of the classroom and leaving a wide aisle in the middle (see Figure 1).

According to Balester, and as Katherine Fredlund will note in her piece, a design similar to UB's classroom "encourages the teacher to take an authoritative stance" (136) because, while the students sit in rows facing the front, the teacher's desk and whiteboard, located in the front of the room, can force the teacher to stand in front of the classroom. In addition, there is one solitary computer desk located in the back corner of the room for a student who sits facing the wall. The student's position prevents him or her from participating or feeling part of the

classroom due to his or her distance from the other students and the teacher. This is just one example of how classroom design can hinder student learning; it is easy for the solitary student to become distracted and refrain from engaging in any classroom activity.

The other students can become distracted as well; while facing the front of the room, each student has to raise his or her head or move to either side of a large computer monitor, which blocks the student from seeing the teacher and/or whiteboard. Students who choose not to direct their attention toward the teacher in this way become disconnected from the lesson as they keep their attention focused on the computer screen. This design limits the students on multiple levels because it allows for students to keep their attention focused on the computer either by playing on Facebook, checking their email, or instant messaging, rather than keeping their attention on the teacher or lesson. If the teacher wants to monitor students' progress, limited space between rows prevents the teacher from walking directly behind students. However, the middle aisle allows the teacher to move freely to either direct attention away from the front or glance at the students' work. Furthermore, the door's location in the back of the room oftentimes causes students who arrive late to distract both the teacher and their classmates as they try to squeeze between rows to get to their seats. The space limitation in UB's computer classroom not only complicates pedagogical goals, but it also hinders student learning.

Rather than adopting the traditional, non-computer equipped classroom design, UN's lab has one row with computers along the back and side walls, forming a semi-circle or "U" (see Figure 2). Specifically, from the perspective of the teacher's desk, there are eight computers that occupy the left side of the room; three are located along the back wall, and six computers sit along the right side. UN's classroom "encourages students to participate as actively as the teacher and to take on some teacherly authority" (Balester 136). As Figure 2 shows, since the tables are arranged in a semi-circle the teacher can avoid standing in the front of the room. Yet, for the teacher to become a part of the classroom "circle," he or she still has to overcome similar disadvantages that I observed in UB's computer lab.

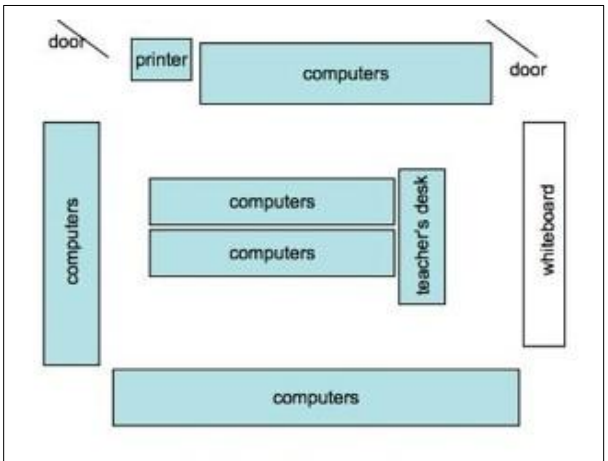

Figure 2: University's N

This design may allow for a student-centered classroom and a collaborative learning environment, but there are two rows with five computers on each side vertically aligned in the middle which create a barrier between the students. The students sitting in the middle face each other, but the computer screens obstruct their view from across the table, making it difficult for those students to work together even though they share the same space. In addition, the students in the center of the room feel isolated from the rest of the class. The students along the perimeter face similar isolation because they have their backs turned to the students sitting in the middle. This arrangement limits collaboration because a student can only comfortably work with one other person, which usually becomes the student sitting next to him or her.

Furthermore, the whiteboard and teacher's desk are both located in the front of the room, sitting directly in front of the two center rows. Similar to UB's computer classroom, the teacher's desk location forces the teacher to stand in front of the classroom. In addition, by sitting directly in front of the two center rows, the attention may become more focused on the students sitting closer to the teacher. The location of the teacher's desk can create a teacher-centered setting unless the teacher sits at a computer that is part of the semi-circle.

Although UN's classroom design seems more effective than UB's computer lab due to the semi-circle or "U"-shaped arrangement that may allow for more student collaboration, the physical settings of both designs can either negatively or positively affect philosophies and ideologies of teaching and learning.

Teaching Philosophies and Ideologies

The physical settings of UB's and UN's computer classrooms can either hinder or support teaching philosophies and ideologies. While Cynthia Selfe and Richard Selfe, in "The Politics of the Interface: Power and Its Exercise in Electronic Contact Zones," refer to why and how teachers use electronic forums in computer-equipped classrooms, they also warn against simply accepting the notion that "[these] spaces . . . have the potential for supporting student-centered learning and discursive practices that can be different from, and—some claim—more engaging and democratic than those occurring within traditional classroom settings" (66). Although Selfe and Selfe's reference to "these spaces" focuses on a virtual space such as the Web or social networking sites, their warning also applies to the physical space in classrooms; in this sense, a computer-equipped versus a non-computer-equipped classroom design can affect teaching philosophies and ideologies by creating either a student-centered or teacher-centered

learning environment. As Balester emphasizes, "If the pedagogy employed in a computer classroom is to promote process writing, particularly a workshop or collaborative approach that encourages student participation or reader response to texts, networking software is essential" (136). However, in addition to needing networking software, it is also necessary to have a computer-equipped classroom design which can allow the collaboration or student participation that Balester describes. Both UB's and UN's classroom settings pose challenges for teachers who value a student/user-centered environment through collaboration and cooperative learning.

The physical setting of a computer classroom can affect interactions between students and the teacher during class, as well as interactions among students, and can hinder class discussion. To allow for a student/user-centered environment it is important that students direct their attention toward their classmates and the teacher during class discussions. In addition, classroom design should allow space for students to collaborate either by working together in groups or pairs on various activities. Class discussion becomes crucial for a successful student/user-centered classroom because students should be able to share their ideas with the teacher and their classmates, rather than having the teacher lecturing or talking the entire class period. UB's computer classroom design causes the classroom to become teacher-centered, rather than student/user-centered because the teacher's desk becomes "a focal point at the front of the room, where the teacher usually stands, within easy reach of the blackboard" (Balester 137). The teacher has to take center-stage to get the students' attention especially during class discussion. Mike Palmquist, Kate Kiefer, James Hartvigsen, and Barbara Goodlew in *Transitions: Teaching Writing in Computer-Supported and Traditional Classrooms* provide an accurate description of this obstruction: "computer monitors are too high for students to see most

of the whiteboard, and even the teacher disappears from view all too often" (80). As a result, "[s]tudents' attention is thus being drawn away from the teacher, who must continually assert herself from the front of the room . . . . The teacher has a second initiative to remain at the front of the room, namely, to direct attention" (Balester 139). Students become anxious to leave the classroom when class ends because they spend most of their time during class struggling to see or hear the teacher or other students. In this case, interaction becomes limited because monitors can obstruct both the teacher and students' view. Since there is minimal space for movement between rows, a student usually collaborates or workshops with his or her peers in the same row unless the teacher moves the students to other areas in the room. Even if students work together in the same row, classroom setting limits collaboration. Palmquist et al. assert,"[s]tudents collaborate with peers sitting next to them but cannot see the computer monitors if they try to work in clusters with other students in a row in front or in the back of them" (80). In addition, the tight spaces between rows prevent the teacher from walking to or standing behind students to help them. This hinders the teacher's ability to help the students while they work on group activities.

UN's computer classroom allows for a student/user-centered classroom; the design does not force the students to face the front. However, while the teacher's ability to move around the room may divert attention from the front, he or she still has to assume authority in the front of the classroom when using the whiteboard or the main computer unless the teacher writes on the whiteboard. Similar to UB's computer classroom, the students who sit in the center still have to raise their heads or move side to side when trying to see or hear other students from across the room. However, their advantage during class discussion is adjusting, turning, or moving their

chairs toward the speaker who is sitting far from their sight and audio range. Ample space between the side aisles and center rows allows the students sitting in the center to move when working with others. Ample space also allows mobility to interact with the teacher as well. For that matter, collaboration among students increases because students can easily move around the room. However, students, who sit facing the wall, as Balester notes, may feel "a sense of singleness" and without a table in the center students have nowhere to retreat. Yet, mobility and frequent collaboration among students may help alleviate students' "sense of singleness" and may encourage students to interact with everyone in the classroom. Collaboration does not have to be limited to rows; rather, mobility increases interaction among students. Even better, a computer classroom equipped with laptops would also increase mobility for both the teacher and the students, a design that Katherine Fredlund's piece will discuss.

Overcoming the Physical Technological Environment

There are numerous ways to overcome the physical technological environment in a computer classroom that poses challenges for teachers. Palmquist et al. suggest that "teachers [can] alter the physical space of classrooms by changing their positions within that space" (78). Since UB's design promotes a teacher-centered classroom with the students sitting in rows facing the front, a teacher can refrain from always standing in the front; the space in the middle allows the teacher to walk around. The teacher can also have a student write on the whiteboard or control the main computer during a classroom discussion; this takes away the attention from the teacher, allowing the students to become a part of the classroom which creates a more student/user-centered environment.

Another way that teachers can challenge the spatial limitation of computer-equipped classrooms is by utilizing online discussion forums which allow class discussion to occur in a virtual environment and may be more effective than face-to-face interactions. Balester emphasizes that "electronic mail and synchronous conferencing could draw attention to all parts of the room via the monitor" (139). As a result, "one person, teacher and student, [does] not monopolize the floor" (139). Using different technologies provides students with a writing space to respond to other texts, to share their work and resources, and/or to comment on their classmates' work. Balester offers an alternative option for an effective face-to-face class discussion; occasionally reserving another room for class discussion may also improve communication among students (Balester 137). However, as Brittany B. Cottrill mentions in her piece, not all teachers have access to an available room for the class to meet in a non-computer equipped setting. It is also possible for students to arrange their chairs in an oval in the middle of the room if space permits for class discussion as well. The important point to remember is that finding ways to arrange the classroom or accommodate the students to enhance learning is essential for a student/user-centered environment.

To improve collaboration and cooperative learning among students, teachers can assign a student to work with classmates other than the ones in the same row. The teacher can also have groups work in the hall for about ten to fifteen minutes to discuss and gather their thoughts, and then groups can return to their monitors. Regardless of how teachers overcome the physical barriers of the computer classroom, Balester explains that networking and file sharing, coupled with the teacher's philosophy, impacts the effectiveness of the classroom:

> [Without] networking and the possibilities thus made available for file sharing, the potential for collaboration is greatly diminished . . . [No] matter how the room is arranged, the influence and philosophy of the teacher will have the most profound effect on teacher and student roles. (147)

If the teacher's goals are to create a student-centered environment through collaboration and cooperative learning, then it is the teacher's responsibility to plan activities that will achieve these goals. However, with universities moving toward incorporating laptops in their classrooms, these challenges may lessen, allowing more mobility and student-centered pedagogies. Katherine Fredlund will reflect on the use of laptops in one of the classrooms where she teaches; she will continue the discussion of classroom design by outlining the advantages and disadvantages of having laptops in the classroom.