

Interactive classroom design using swivel seats (311 Peabody) Spring 2011 Summary of Findings

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BACKGROUND

The importance of student interaction and collaboration in the classroom is well-established in the educational research literature and is promoted in the University's own Academic Plan. Yet, most college classroom designs emphasize the presentation of information from instructor to students and use seating configurations that discourage direct eye contact, interaction between students, and ease of movement throughout the classroom. This is especially problematic in mid-sized classrooms (25-49 students), where rearranging furniture during class is often time-consuming and disruptive. Mid-sized classrooms account for almost half of the University's inventory of general purpose classrooms.

In spring 2010, the Center for Faculty Excellence, ITS-Teaching and Learning, and the School of Education (SOE) piloted an experimental classroom design that facilitates movement between lecture, small group activities, and class discussion. The project was undertaken with the cooperation and support of the Provost's Office, ITS, the University Registrar, and the Classroom Policy Steering Committee. The 48-seat room in 311 Peabody uses stationary desks that swivel 360 degrees and are configured in four clusters (Figure 1). Additional information on the design is available at: http://cfe.unc.edu/clients/311Peabody_design_summ.pdf



Figure 1 – 311 Peabody renovation

FALL 2010 PILOT

During the Fall 2010 semester, eight 3-credit courses were taught in the room along with five 50-minute recitations and several weekly one-hour Supplemental Instruction (SI) study sessions for Biology 101. Most of the courses taught in 311 Peabody during the Fall 2010 semester did not meet the criteria for mid-sized enrollments targeted by this design because they had been scheduled *before* the redesign was proposed. Students and instructors in two of the SOE courses, a Philosophy recitation section, and the SI sessions agreed to complete brief surveys at the end of the fall

semester. The two SOE courses had enrollments of seven and twelve students, the recitation section enrolled 25 students, and the SI sessions saw regular attendance of 30-48 students.

Students were asked open-ended questions about what advantages and disadvantages, if any, that they realized using the swivel desks. Their responses corresponded to seven primary themes. The responses for students in the mid-sized sections are listed along with response frequency in Table 1. Forty-one students completed the survey.

Advantages N=41	Disadvantages N=41
Eye contact: 20 Easy to get in groups: 12 Easy to see boards/displays: 11 Fidgeting helps me stay focused: 7 Comfort: 2	Desk tablet too small: 11 Distracting: 11

Table 1 – Student responses in mid-sized undergraduate sections

The following student comments are representative of those collected:

“It was nice to be able to focus my attention on someone when they were talking instead of looking straight ahead the whole time.”

“Easier to interact with classmates - when splitting into groups to discuss you save time by not having to get up and move.”

“I like that it allows you to face everyone in the classroom. I think it contributes to a more collaborative atmosphere. It also evokes the sense that there is no particular front of the room and so the focus merely goes to whoever is speaking.....”



Students facing rear of classroom



Students working in groups

The instructors for the recitation and SI sessions surveyed were both graduate students with previous teaching experience. Both also taught separate sections in traditional classrooms during the Fall 2010 semester, and drew comparisons in their comments about 311 Peabody:

“During this semester, I also taught the same sessions in a large traditional lecture hall with stationary seats. The way I taught the study sessions did not change; however, I noticed a drastic difference in the attitudes of the students in the 311 Peabody sessions toward interactive teaching techniques. For instance, students were much more willing to explore a question on their own before I gave them the answer. When I told them to turn to their neighbor or a group of their neighbors, the room would immediately break out in chatter. “

“There was clearly much more rapport (compared to the other section) between the students and me, and among students themselves just because it was so easy for them to see and hear everyone. There was always a sense of community in the class, with the result that I was more comfortable lecturing, the students were more willing to listen to me and to each other, and they were also more willing to speak up.”

As expected, feedback from instructors and students in the small-enrollment SOE courses was mixed. When asked if they felt the classroom was a good fit with the course, both instructors and nearly half of the students questioned the effectiveness of this design for courses with small student enrollments. One instructor lamented the inability to arrange chairs in a circle, and several students stated a preference for collaborating with other students around tables.

The results of the Fall 2010 pilot suggested that this design may facilitate interaction and a sense of community in the classroom, factors that the education research literature suggests can be important to student learning. Due to the small number of courses with the targeted class size, however, the project team looked to results of the Spring 2011 pilot for a more accurate appraisal.

SPRING 2011 PILOT

In preparation for the Spring 2011 semester, the CFE put out a call to faculty members planning to teach courses with enrollments between 25-48 students. More than thirty instructors expressed interest in using 311 Peabody. The Spring 2011 schedule included ten 3-hour courses, two recitation sections, and three SI sessions. The instructors represent ten different academic units and all have agreed to participate in assessment activities this spring.

A multi-method approach was used to collect information about perceived advantages and disadvantages from both student and instructor perspectives. Surveys were administered to the instructors at the beginning and end of the semester. At the beginning of the semester, surveys included questions regarding teaching background, classroom strategies, and previous experiences in traditional classrooms. At the end of the semester, instructors were asked about their use of various elements of the experimental classroom and included open-ended questions regarding perceptions of how the room affected the learning environment and overall satisfaction with the classroom. Similarly, students in eight of the ten courses were administered surveys at the end of the semester with questions that gauged student satisfaction with the room, perceived level of engagement, sense of classroom community, and the overall advantages and disadvantages of the learning environment. Across the eight classes, 215 students responded to the survey, representing approximately 78% of the 276 students who took classes in the experimental classroom during the semester. Student and instructor surveys included both forced choice and open-ended questions. Open-ended responses were analyzed using a grounded approach in which common themes were identified in the data.

Key Findings

- 94% of students said that the classroom design contributed to the quality of their interactions with other students.
- 77% of students said that the classroom design contributed to their willingness to participate and ask questions in class.
- Two instructors and 16% of the students surveyed said that the swivel desks had been a distraction at times. They were most likely to mention “moving too much” while in the seats or items falling off the desks.
- 80% of the students said they would like to take additional courses in 311 Peabody or a classroom similar to it, while 18% were neutral on the question.
- All nine of the instructors who completed the post-semester survey said they would consider teaching another course this classroom or one with a similar design.

Student attitudes

In open-ended responses, more than one in four students mentioned eye contact or the ability to look at others as a benefit of the room design. “The design makes it feel more like a roundtable discussion than a classroom setting, which makes participation feel a little more natural”, said one student. Another common theme in the student comments was an appreciation for getting to know students sitting close to them. Another student noted that “In most classes I might talk to the person directly to my right or left, but I’ve talked to many more people in this course”.

Students had three primary suggestions for improving the classroom. Nearly a third of the students would prefer that the desks not automatically return to a standard position when unoccupied. Larger tablets on the desks were suggested by 11% of students. Another 8% said the dearth of power outlets in the room was a problem, although access to power is an issue in most classrooms and addressing this issue was beyond the scope of the project.

Instructor attitudes

Overall, instructors also reported that the experimental design had positive impacts on student interactions. They reported that the swivel seats “made the class more intimate” and allowed for student interactions to occur “more seamlessly”. One instructor noted that the “ability of students to face toward a student who is speaking makes the class more interactive”.

All instructors reported using the aisle space to interact with students or student groups on a regular basis. Six of the eight instructors reported that the room facilitated movement and thereby improved student engagement. One instructor said the room allows him to “...move about and engage with my students directly”. The improved movement of the instructor throughout the classroom was noted to have effects on participation and engagement by students and instructors alike. Instructors noted that their ability to move around the room had an overall effect on the dynamic in the classroom. One said, “[the design] makes the back of the room less different than the front of the room since the instructor can move around”.

Mid-term feedback from eight of the ten instructors is available in Appendix A.

NEXT STEPS

The fixed swivel design will next be piloted in a 36-seat classroom with quadrants of nine seats each. Modifications likely to be made during the next implementation of the design include 1) larger tablets on desks, 2) no automatic return on the desks, and 3) the use of one video display instead of two. This room will likely be online by the spring 2012 semester. The process of identifying new candidate rooms has raised additional questions about the design. For example, the specific layout used for the classroom design described in this article does not translate as well for rectangular rooms with elongated profiles. Moving forward, another important criterion for interactive designs must be their ability to accommodate the limitations of existing facilities.

Scheduling a general purpose classroom with special instructional features has raised several policy issues. For example, what is the best way to ensure that faculty members who would benefit from classrooms such as 311 Peabody end up teaching in them? Representatives from the Office of the University Registrar, the CFE, and ITS-Teaching and Learning have begun discussing these and other related issues, and will continue to seek the guidance of the Classroom Policy Steering Committee.

Appendix A

Swivel-desk classroom design (311 Peabody) - Mid-term instructor feedback

Ten instructors teaching in 311 Peabody for the first time during the Spring 2011 semester were invited by the CFE to comment on their experiences using the room so far. Eight of the ten responded.

The experience has been all positive for me. Although I have a larger than usual class (40 + 2 auditors), the layout of the room allows me to move about and speak face to face with students as they engage in discussion. Students swivel to face other students speaking, rather than staring at the backs of their heads. The quadrant arrangement has allowed me to do some creative group work and the doc cam in combination with the portable white boards help groups share the work with the whole class. I would prefer a white board rather than a blackboard at the front of the room—but that is a minor complaint. I hope to be able to teach here next spring.

Associate Professor, English

So far the room is working out very well for me, and in just the way I'd hoped. The students are able to move into small groups to work without having to spend 5 min. rearranging furniture. And then they simply have to turn around to redirect their attention to me and the class at large. In addition, students are able to actually turn to look at whichever one of their colleagues is speaking – I think this is why my students are doing such a good job building on one another's comments. Even on days when I'm doing more lecturing, I often pause and ask them just to talk in pairs about a particular question. When this happens, I've noticed students spontaneously forming into their groups, rather than just talking to the person beside them. There's also plenty of room for me to walk around, which again helps set the tone of everyone focusing on the person speaking.

Today we did not work in small groups, but worked together through book 2 of the Republic. There are 42 people in my class. After class, I counted up how many people had said something. 26!! It is quite unusual for participation to be that widespread, even though I focus on encouraging it no matter where I'm teaching. I think part of why it is happening is the way in which this classroom works to create a learning community.

Associate Professor, Political Science

Overall, I really enjoy this room. I love having boards all over the place and no one has to crane their neck to see behind them. I love it that I can lecture in one spot or roam and everyone can turn to go where I go. I love being able to easily have the break up into groups and then swivel out again. Its a lot of fun and I find myself wishing for a similar room when I teach my much smaller class on the 2nd floor of Peabody. The students seem to enjoy it as well--the set up really helps foster a sense of collegiality and group involvement.

Things that are a little irritating-- some desk pairings are a little more awkward than others (i.e. farther apart). It's great for walking to a board but I feel like the students are at a shouting distance sometimes. I also wish that the blackboard

at the front of the room were a white board. It's really the only board that everyone can see easily (the angle is tight for the edge rows and the board across from the computer desk) but I like white boards better. And finally, the screen by the door squeaks so badly when it goes up and down--it just drives me nuts. (I should point out that the class downstairs I teach in has the same problem).

Lecturer, Environmental and Ecology

I am using the classroom capabilities regularly to break between lecture mode and small-group discussions and debates, breaking them up into subgroups of 6, 4 and/or 2, and then having them present their group results using the hand-held white boards and overhead document camera. It greatly facilitates the type of teaching I am trying to do, making it much more interactive and activity-based.

Professor, Public Policy

I'm enjoying teaching in the room. I've continued to use my active learning techniques already developed in the course. I'm enjoying the space to walk around and assist students. Groups of 2, 3, 4 work best, groups of 5 don't work with the set up of the chairs. I've pulled out the extension cords for students to use when we have activities needing laptops. No major technology glitches in the room. Projection is good, sometimes the remote advancer isn't reliable from far away. Otherwise, the board space for group work is sufficient.

Lecturer, Biology

In terms of my use of the space, I find that I use the time when the students are working in small groups to circulate along the center aisles and around the perimeter of the room, which seems to be helpful for addressing questions that students have and to spend some time in closer proximity to the less talkative groups. I've been using the center of the room primarily as a place to stand when I want to call students back from small group work, but it's kind of inconvenient to stand there and talk for an extended period of time (e.g., my back would be to half the class). I'll sometimes stand at the end of the aisles when we have whole-class discussion if there isn't anything particularly important displayed on the screens at the front of the room (e.g., if I want students to engage with me and with their classmates rather than gaze at PowerPoint).

It seems (to me) that students have gotten into the pattern of working with small groups, and the transition from large-“lecture” to small-group discussion at this point seems ***really*** fast compared with other classrooms. Also, from my perspective, the class feels smaller; I don't feel like I'm in a room with almost 50 students, and our day-to-day attendance has been higher than I've seen in earlier versions of this same course.

The lack-of-power issue doesn't seem too serious in my class—most students seem fine without plugging in, and those who need power sit closer to the plugs, but I do have one student whose laptop has awful battery-life, and she's stopped bringing her laptop during class. (I haven't rolled out the power-strips, either, given that I haven't heard much clamoring for more outlets.)

One change that might be worth considering: having the writing surface of the walls be consistent throughout the room. I feel kind of limited in terms of where I can record students' responses during brainstorming activities. I've used the whiteboard in the back of the room for this, but it's pretty small. If there were whiteboards on the left and right walls, I'd be more inclined to have students use them. I did use the small, hand-held whiteboard once, but having students use them—with their laptops on their desks—seemed too difficult to manage, logistically.

Instructor, Information and Library Science

Once I got used to the somewhat disorienting configuration of the room – the chairs are at an odd angle – I find that the room is really conducive to small group discussion. My class has 20 students, so I use only half the room and bring a chair into the middle of the class. This makes using the blackboard slightly difficult. The one in front is too far away, as is the one at the far end of the room. That leaves the smaller one on the one wall, and it is too close to the students. I suspect I wouldn't have this problem if the class had more students and they were spread out. The students are a good bunch, but I think the way the chairs are configured contributes considerably to their conviviality and focus on classroom work.

Professor, African & African-Amer Studies

Overall, the response from students has been positive. Students seem perfectly able to "sit still" when they need to and can quickly assemble into small groups when asked. I have had 2 incidents of laptop falls after a student got up and the chair moved back to the resting position. No fatal crashes though. The seating also is helpful on testing days because students are evenly spaced and there is plenty of room for me to easily monitor any odd behaviors.

Bottom line is that I have liked the room. Having taught in the room before the seats we installed, I can clearly see some of the advantages. On the other hand, has this room changed my teaching? Probably not. The small group activities that I currently do were already a part of my lesson plans carried out in a traditional room. Yes, the seating makes this easier and certainly less time is wasted transitioning to and from these small group sessions, especially with 45 students in the room. Time is particularly salient given the 50 minute format of the class, so this is not an insignificant improvement. I can't honestly say that I have added more interactive elements into my lesson plans though.

Graduate Instructor, Psychology