

Team Based Classrooms (TBC) at the University of Illinois at Chicago (UIC)

SNAPSHOT

Institution: The University of Illinois at Chicago (UIC), Office of Campus Learning Environments (OCLE)

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Contacts: David Taeyaerts, Principal Investigator, Director - Office of Campus Learning Environments, University of Illinois at Chicago (davet@uic.edu)

Marta Merchut, Researcher, Operations Coordinator - Office of Campus Learning Environments, University of Illinois at Chicago (marta@uic.edu)

Kylee Karns, Student Research Assistant, Honors College Student, University of Illinois at Chicago (kkarns2@uic.edu)

In the summer of 2012 the Office of Campus Learning Environments (OCLE) at the University of Illinois at Chicago renovated Taft Hall 100 and 120 to create Team Based Classrooms (TBC). The TBC feature a unique layout and equipment, as seen in figure 1, to enable active and team-based learning. A research team conducted a quasi-experimental research project during the spring 2013 semester to try and determine the effectiveness of the TBC design.



Figure 1

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1. Project Overview

1.1. Research Project Description

After receiving IRB approval for the research protocol, which occurred during the fall 2012 semester, a UIC student was recruited to work on this effort as an Honors College Capstone project, alongside researchers from the Office of Campus Learning Environments (OCLE).

During the spring semester of 2013, the research team gathered data to understand the impact that learning environments have on pedagogy, student engagement, and learning. The research involved two simultaneous studies:

- One study involved gathering data from two different courses taught in the same Team Based Classrooms (TBC)
- The other study gathered data from the same course taught in two different spaces (a TBC and a conventional classroom)

Research instruments included time-activity observations, two different surveys, a student focus group, and an instructor interview. At the end of the semester the data was analyzed and meaningful results have been summarized herein.

1.2. Research Goals

The goal of the research project was to evaluate how the TBC are being used, how users (both students and faculty members) perceive them, and how they impact peer-to-peer learning and student participation. With this goal in mind, data was sought to answer the following questions:

1. What is the student perception of the TBC and their unique design elements?
2. What is the faculty perception of the TBC and their unique design elements?
3. Do the TBC impact peer-to-peer learning?
4. Do the TBC impact student participation?

1.3. Hypothesis

The hypothesis for this research project was that the TBC enable and foster more collaboration and interaction among students and between students and faculty members than a conventional classroom.

1.4. TBC Description

The TBC that was part of this study, Taft Hall room 100, contains eight fixed team tables that seat six people on moveable task chairs. Each table is supplied with two laptops (one for each group of three students) and a monitor that displays images from the laptops. The room also features an integrated multi-media lectern with a resident computer that contains software, which allows the instructor to share content from any laptop to the rest of the displays and/or to two large centrally positioned projection screens. In addition to new furniture and technology, the space includes new finishes, new whiteboards, and floor to ceiling windows on two walls.

1.5. Conventional Classroom Description

The conventional classroom that was part of this study, TH 216, contains rows of movable tables and sled-based chairs facing the primary instructional wall, which includes two projection screens. Technology includes an integrated multi-media lectern with resident computer, but no content sharing software or student laptops. In addition to new furniture and technology, the space includes new finishes, new whiteboards, and tall, narrow windows set in precast concrete panels on two walls.

2. Approach and Process

2.1. Planned Methodology and Approach

Two simultaneous studies were conducted as part of this research project. The first study was to gather data on two different courses (BA 200 and IDS 462) being taught in the same TBC. The second study was to gather data on the same course (BA 200) taught by the same professor in a TBC and in a conventional classroom. In both studies, data was compared to evaluate how the learning environment impacts pedagogy, student engagement, and peer-to-peer learning.

Observations were logged into a table and included a code, a description of the activity, and how many minutes were spent on each activity. *Due to the scheduling conflicts, one researcher observed both courses in the TBC and the other researcher observed the course taught in the conventional classroom. Unfortunately, the recording of observation activities by the two researchers was never authenticated. In hindsight, both researcher should have independently recorded activities for the same course at the same time and then compared their activities after 20% of the semester. If their recorded activity data was in agreement at least 80% of the time then we could have assumed that their separate observation data was authenticated.*

2.2. Courses Selected for Study

The following three courses were selected to be part of the research study:

1. Information and Decision Science, Statistical Software for Business Applications 462 (taught in a TBC): A statistical software course designed to teach business application and data mining with the use of SAS and other software packages such as SPSS, MATLAB, Maple, Splus, B34S, and SCA.

All students enrolled in this course were upper level undergraduates and graduate students, who had previously taken IDS 371 (Statistics II). Of the students who take this course, 77% choose to take it as an elective due to personal interest in the subject matter. The student body consisted of 24 males and 12 females. The average age range of students for this course was 25-33.

2. Business Administration, Managerial Communication 200 (Section A was taught in a TBC): A course designed to teach the principles of effective business communication in speaking and writing.

All students enrolled in this course were undergraduate students, mainly freshmen, in the College of Business Administration. The average age range for this course was 18-22. Thirty-five percent of the students did not speak English at home and the instructor

noted that they struggled with English grammar and critical thinking skills, which impacted their self-confidence.

3. Business Administration: Managerial Communication 200 (Section B was taught in a conventional classroom by the same professor who taught section A)

The student demographics for section B were similar to those for section A.

2.3. Data Collection Process

Data was collected during the spring 2013 semester from students and instructors in order to learn how faculty may have altered their teaching methodology in the TBC, compared to a conventional classroom, and how students responded to the altered pedagogy and the new learning environment.

The data collection instruments were varied and included observations, surveys, focus groups, and interviews. Time-activity observation data was collected for each class session throughout the semester. A student survey was conducted at the beginning of the semester and a similar survey was conducted at the end of the semester. A student focus group and instructor interview were conducted at the end of the semester.

The data collection tools used in our research were modeled after the University of Iowa's Transform, Interact, Learn and Engage (TILE) study that took place from 2010-2012. The TILE study developed the observation protocol, survey tools, focus group and interview questions. Each one of these instruments was modified to fit this research project. (See Appendices for the tools)

3. Results

3.1. Beginning of the Semester Student Survey

Administering a survey to students at the beginning of the semester was important since it was the first time that most students had seen the TBC. Of the students who attended the first class, 100% participated in the survey. The survey consisted of seven questions and is shown in appendix A along with the results. Below is a summary of key findings/results:

IDS 462 (In TBC)

1. Out of the 32 students enrolled in IDS 462, 87% agreed or strongly agreed that their learning experience would be different because of the unique design of the studio. Only five students had previously taken a course in a TBC.
2. 81% of the students agreed or strongly agreed that group activities help them learn.
3. 97% agreed or strongly agreed that using a laptop in class helps them learn course material.
4. 90% agreed or strongly agreed that the physical layout of the room would be helpful for interacting with other students and the instructor.

BA 200 (Section A in TBC)

1. Out of the 21 students enrolled in BA 200, 100% agreed or strongly agreed that their learning experience would be different because of the unique design of the studio and only two students had previously taken a course in a TBC.
2. 71% agreed or strongly agreed that group activities help them learn

3. 76% agreed or strongly agreed that using a laptop in class helps them learn the course material
4. 95% agreed or strongly agreed that the physical layout of the room would be helpful for interacting with other students and the instructor.
5. Several students also independently noted in the open comments section that they “loved the layout” of the TBC and were “open to try anything”.

It is interesting to note the differences in responses between the older students in IDS 462 and the younger students in BA 200. The physical layout appeared to make a bigger impression on the younger students and a greater percentage believed that it would result in a different learning experience. A greater percentage of older students acknowledged that group activities and laptop computers help them learn.

3.2. End of the Semester Student Survey

At the end of the semester students were asked twelve survey questions, two of which were similar to questions asked on the beginning of semester survey. Of the students who attended the class at the end of the semester, the response rate was 100%. The survey questions and results can be found in appendix B. Below is a summary of key findings/results:

IDS 462 (In TBC)

1. 56% agreed or strongly agreed that group activities in the class helped them learn better.
2. 53% agreed or strongly agreed that the LCD monitors at the ends of the tables were useful for learning.
3. 88% agreed or strongly agreed that sitting at tables was helpful for group activities.
4. 75% agreed or strongly agreed that the laptops on the tables were helpful for activities.
5. 53% agreed or strongly agreed that they were comfortable displaying their work on the LCD monitor.
6. 63% agreed or strongly agreed that the TBC was appropriate for the material learned in this course
7. **44% reported that there were frequent or very frequent problems with the technology and that it interfered with activities in this class.**
8. 63% agreed or strongly agreed that coming to class every day was important to their learning
9. 56% agreed or strongly agreed that compared to other courses, this course required them to participate more
10. **44% reported that they were less interested in this class compared to other classes**
11. 44% reported that they participated in more group activities in this class than in other classes.
12. 56% agreed or strongly agreed that they would like to take another class in the TBC.

The technology problems encountered by this class and the perceived lack of interest in the class may have influenced the results. For example, at the beginning of the semester 97% reported that using a laptop in class would help them learn the material, but at the end of the semester this number had dropped to 75% on a similarly worded question. Despite the problems and lack of interest a very high percentage (88%) did respond that the tables were helpful for group activities.

BA 200 (Section A in TBC)

1. 90% agreed or strongly agreed that group activities in the class helped them learn better.
2. 80% agreed or strongly agreed that the LCD monitors at the ends of the tables were useful for learning.
3. 90% agreed or strongly agreed that sitting at tables was helpful for group activities.
4. 100% agreed or strongly agreed that the laptops on the tables were helpful for activities.
5. 70% agreed or strongly agreed that they were comfortable displaying their work on the LCD monitor.
6. 90% agreed or strongly agreed that the TBC was appropriate for the material learned in this course
7. **70% reported that there were frequent or very frequent problems with the technology and that it interfered with activities in this class.**
8. 85% agreed or strongly agreed that coming to class every day was important to their learning
9. 95% agreed or strongly agreed that compared to other courses, this course required them to participate more
10. 80% reported that they were more interested in this class compared to other classes
11. 95% reported that they participated in more group activities in this class than in other classes.
12. 90% agreed or strongly agreed that they would like to take another class in the TBC.

The technology problems encountered by this class did not appear to influence the results, which is surprising. In fact, at the beginning of the semester 71% reported that group activities helped them learn, but at the end of the semester the number had increased to 90% on a similarly worded question. Also, at the beginning of the semester 76% reported that using a laptop in class would help them learn the material, but at the end of the semester this number had increased to 100% on a similarly worded question. It appears that despite the problems the pedagogy of this course may have been a better fit for the TBC and therefore the results of the end of semester student survey were much more positive.

3.3. Instructor Interview

The instructor interview took place at the end of the semester and consisted of 15 questions and then follow-up questions to clarify responses. The professor who taught both sections of the BA 200 course, one in a TBC and one in a conventional classroom, was the one who was interviewed. The interview questions and transcript can be found in appendix C. Below is a summary of key findings/results:

1. The professor was asked if he spent the same amount of time lecturing or on group activities in TH 216 (conventional classroom) and in TH 100 (TBC) and he responded as follows: "I am thinking that I spent more time lecturing in TH 216 than I did in TH 100. I think because of the availability of the hardware (in TH 100)... That precipitated more group projects." The professor noted that he wanted students to work together and even if one laptop computer was down in TH 100, two students still had access to one functioning laptop and the screen in front of them.
2. The professor was asked what advantages there were to teaching in TH 100 (TBC) and he responded as follows: "I loved the fact that there were basically four to six students at every table. So right away you have a group activity driven setup." The professor noted

that it is his belief that a teacher-fronted classroom is outdated. He went on to say that because college students don't always come to class prepared, there has to be a certain level of teacher fronted activity, but we can segue from the "here is what we are going to do and a ten-minute instruction to doing it and TH 100 fits that model beautifully."

3. The professor made the following comparisons between TH 100 (TBC) and TH 216 (conventional classroom): the difference between TH 100 and TH 216 is that "in TH 100 you can see if the students are actually getting it, or not. And in TH 216, I don't know if they get it or not and this is a big challenge for instructors. I say to you blah blah blah but I don't know if you understand me. But in TH 100 I can look on your screen and as you write I am aware that you didn't hear me when I said don't use the verb to be... And that is the beauty of it. You can see that what you're teaching is being absorbed and applied. Whereas in TH 216 you don't see it till the next day, next week, or next month and then the response from the professor is delayed and the learning is lost."
4. "I think this (the technology) is the asset of TH 100 if we can fix it or improve it. When a student is online with a report, their email, (it is easy) for me to go in a write my comments on his paper from the console to his particular location." The professor also stated that the technology in the studio helps tremendously when giving *immediate* feedback that addresses the real issue students have with writing, which is the use of syntax, order, logic, and linguistics.
5. In regards to teaching, he said that the TBC allows students to judge each other's work instead of a *conventional memo* provided by the professor, which has a huge impact on the way they learn and analyze their own work. He stated: "Yes, the ability to post students work on the overhead for everybody to see lets them see two things: 1) their own work and how it compares to others and 2) how good some of the students write versus how badly some of them write. And I think that's a wakeup call. It's one thing for me to present a document and say this is what a memo or an email should look like. It's another thing for the person sitting next to you to have generated the document that's just flawless. That this is obviously an A document and you're thinking she sits right next to me and she can write that well. Wow. I am deficient. And I don't have to teach that. The student sees it because his or her partner generated it. And now everybody sees it and it's a how do you become better. You play against the opponent that's better than you are. . . . But, competition leads to excellence."
6. The professor noted the importance of supplementary training on how to use the equipment and that he never quite developed a comfort level with the technology in the TBC.

3.4. Student Focus Group

The student focus group took place at the end of the semester and consisted of 14 questions and then follow-up questions to clarify responses. Three students participated from the BA 200 course that was taught in the TBC. The focus group questions and transcript can be found in appendix D. Below is a summary of key findings/results:

1. When the students first entered the room and looked around their first impressions were that the class would be more computer oriented and would involve more group based activities.

2. The students were asked to identify the biggest advantage of the TBC and they noted that they liked how they could type a document on the laptop and have it instantly displayed on the LCD panel at the end of the table for others to see. They noted that this made it easier for everyone to critique each other's work and compare it to their own. One student also mentioned that by displaying his work, even if it had mistakes, was a positive learning experience for everyone and no one seemed embarrassed by having it displayed on the LCD screen.
3. The students also made the following comments about peer-to-peer learning: "He (the professor) would say something and we wouldn't understand and the group would help each other. . . If we needed help then we would just ask across the table do you understand this or not and other people would get involved. But, it's not like something he said *oh ask your group mates like how to answer this problem*. It was just more on our own."
4. The students said they really enjoyed being able to get to know the small group of people at their table and to understand each other's strengths and weaknesses. When it came to the final project they were able to collaborate better since they already knew each other's skill set.
5. The students said that they were more likely to participate in this class setting and attend class due to the professor being able to instantly identify if they were absent.
6. During this class the students felt comfortable talking to their team members and forming groups for projects because it was very easy to build a connection right from the start due to the seating arrangement.
7. The students noted that it was much easier to ask questions and be seen by the professor than in a conventional classroom.
8. All of the students agreed that they would like to take another course in the TBC

3.5. Time-Activity Observation Data

The discrepancies in the amount of time spent on observed activities for course BA 200 between the TBC and the conventional classroom were abnormal. Especially in light of the comments by the instructor during the end of semester interview that he spent roughly the same amount of time in group activities in both spaces. As a result we did not utilize the time-activity data.

However, by analyzing the time spent per class, it showed that the professor was able to cover the same material in less time in the TBC compared to the conventional classroom. The time data indicated that the professor spent 8 minutes less per class or 116 fewer minutes over the course of 15 class session. When asked about this finding the professor could not explain why it happened, other than to say that he spent more time talking in the conventional classroom because of comfort and habit.

The observation tools and results can be found in appendix E.

4. Conclusion

4.1. Was the Hypothesis Correct?

The results indicated that in the BA 200 course the TBC fostered more collaboration and interaction between peers and more interaction between the professor and students than in a conventional classroom. The professor also highlighted the impact that the audio-visual technology in the TBC had on learning and on student engagement.

4.2. Were our Goals Accomplished?

The results of the student surveys indicated that the physical design does impact student perception of their learning experience and that the layout of the TBC was strongly perceived as being helpful for interacting with other students and the instructor. The faculty member highlighted the pedagogic advantage of the technology at the student group tables and the screen sharing software. Both the students and the professor noted that peer to peer learning took place and that there were more group activities in the TBC than courses taught in a conventional classroom. And students strongly perceived that their level of participation in the TBC was more than a course taught in other classrooms.

4.3. Reflections on Methodology and Effectiveness of Research

The TBC layout, furniture, and technology had an impact on student group interaction, activities, and participation. When the pedagogy is the right fit for the TBC then the results are very positive, despite problems with technology. However, if the pedagogy is not modified for a TBC space then the results are not as promising.

As noted earlier in the report, the methodology of the time-activity observation was flawed. The recorded activities of the two researchers should have been authenticated to validate the gathered data.

The instructor interview proved very insightful not only regarding the advantages of the TBC but also in understanding the nature of the technological problems encountered during class and the need for faculty development and training.

4.4. Lessons Learned

We gained valuable insights from the TBC research, but the sample size was small. It would have been beneficial to increase the number of courses observed so we would have had more data to analyze and compare.

It was also noted that professors should be required to take a short course on how they might be able to adapt their pedagogy to the TBC and how to properly utilize the equipment and software.

4.5. Future Research Plans

As an extension of this study we plan to video tape sessions of a BA 200 course taught in a TBC to conduct a visual analysis of the learning activities taking place in the space.

Acknowledgments

The authors would like to thank Professor William Kohler, Lecturer of Managerial Communications, and Professor Unsal Ozdogru, Clinical Assistant Professor of Information and Decision Sciences, for graciously participating in this study.

Notes

1. Horne, Sam Van., Murniati, Cecilia., Saichai, Kem., *Transform, Interact, Learn, and Engage (TILE) Project*. University of Iowa: EDUCAUSE: SEI, 202. 1-18. Print. <<http://its.uiowa.edu/instruction/tile>>.

Appendices

- A. Beginning of semester student survey and results
- B. End of semester student survey and results
- C. End of semester instructor interview questions
- D. End of semester student focus group questions
- E. Classroom observation protocol, codes, and results

APPENDIX A: Beginning of Semester Survey and Results

1. Why did you decide to take this class:
 - a. Requirement
 - b. Elective
 - c. Unsure
 - d. Other: _____

2. I am interested in taking this class:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree

3. Have you taken a class in this TBC classroom before:
 - a. Yes
 - b. No

4. In general, group activities in class help me to learn:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree

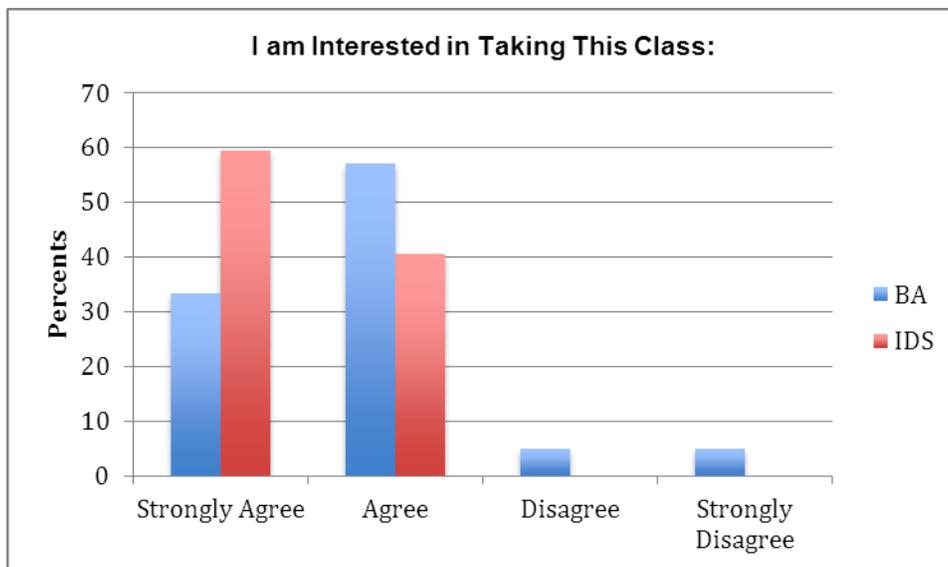
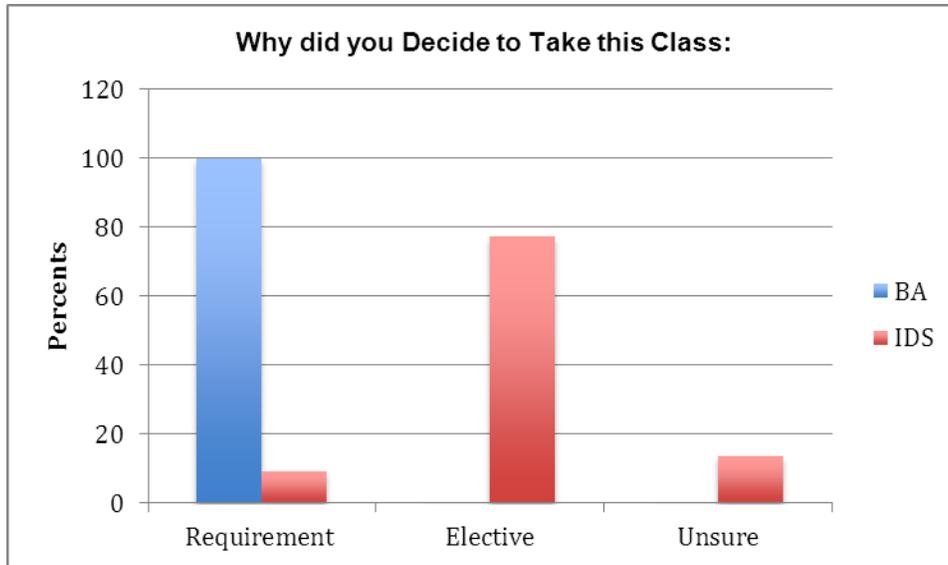
5. Using a laptop in class helps me to learn the course material:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree

6. The physical layout of this room is helpful for interacting with other students and the instructor:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree

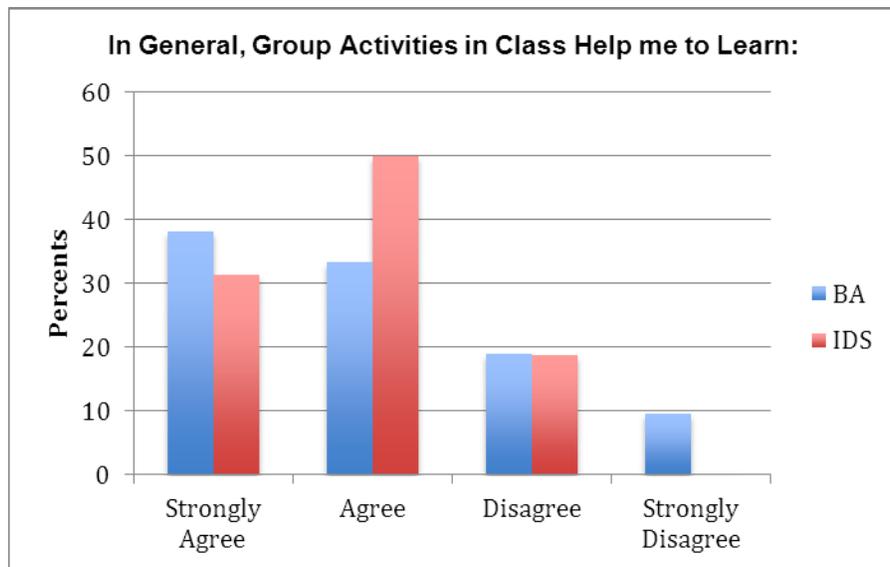
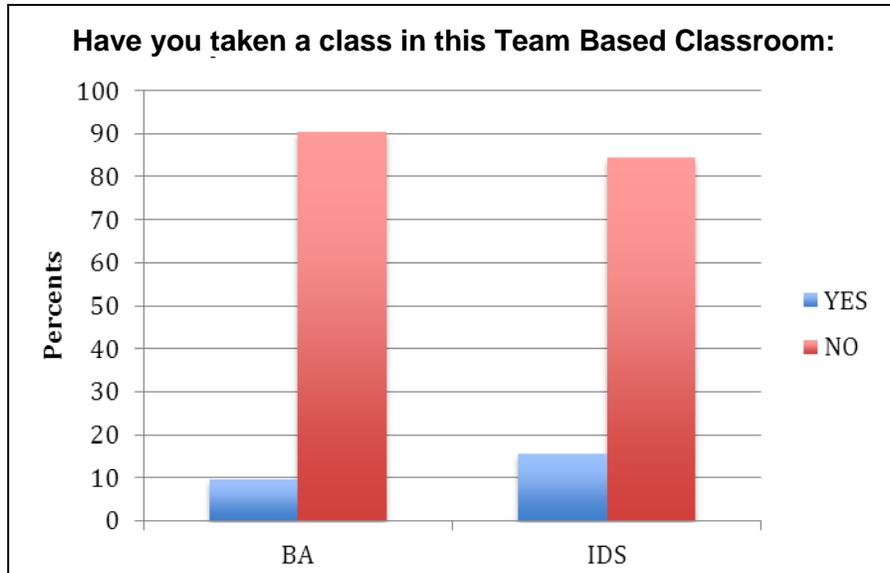
7. I believe my learning experience will be different because of the unique design of the room:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree

Comments:

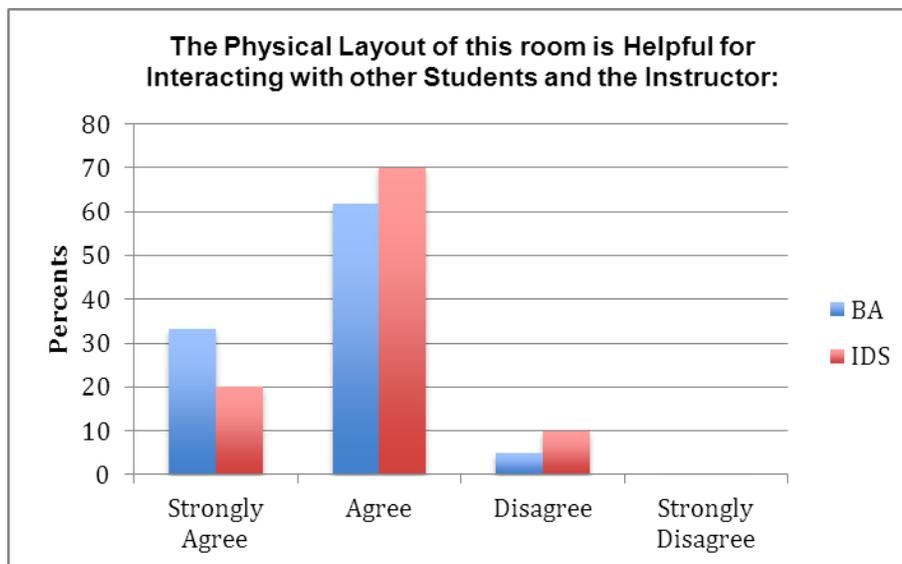
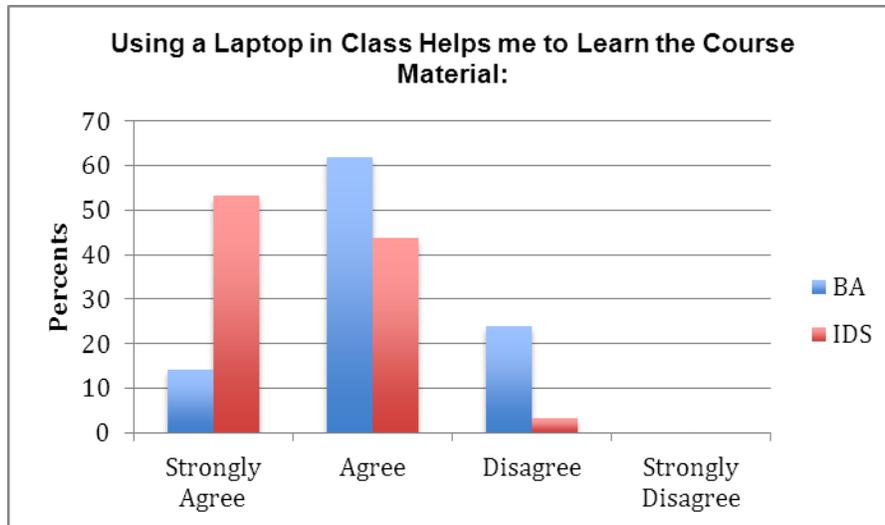
APPENDIX A: Beginning of Semester Survey and Results



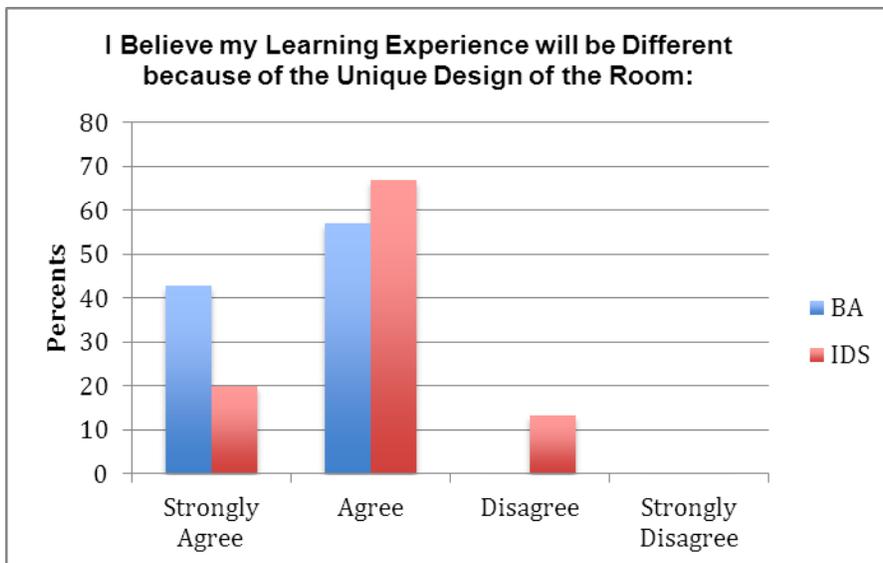
APPENDIX A: Beginning of Semester Survey and Results



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APPENDIX A: Beginning of Semester Survey and Results

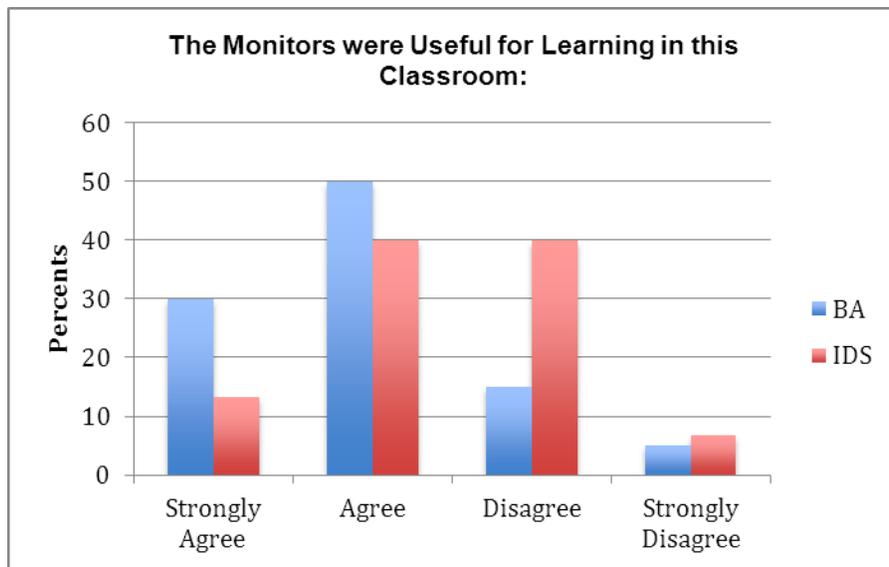
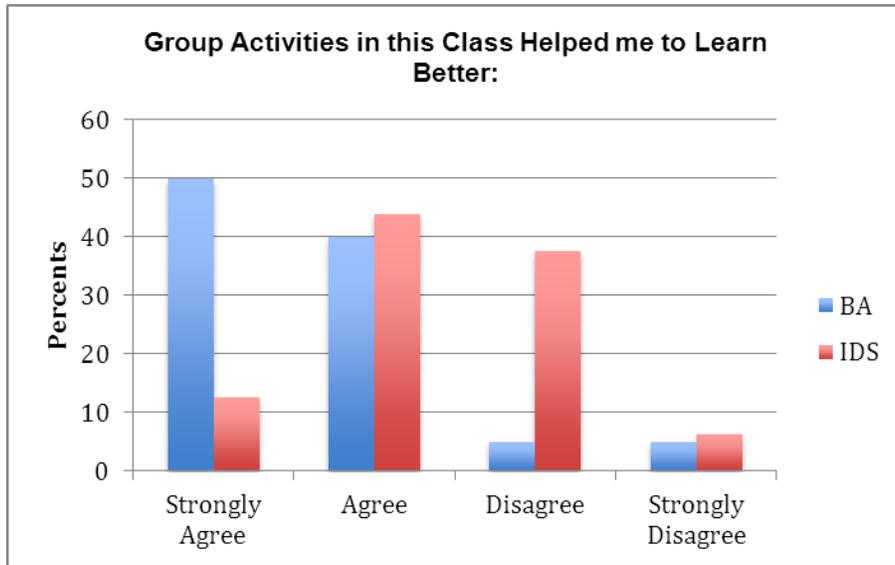


APPENDIX B: End of Semester Survey and Results

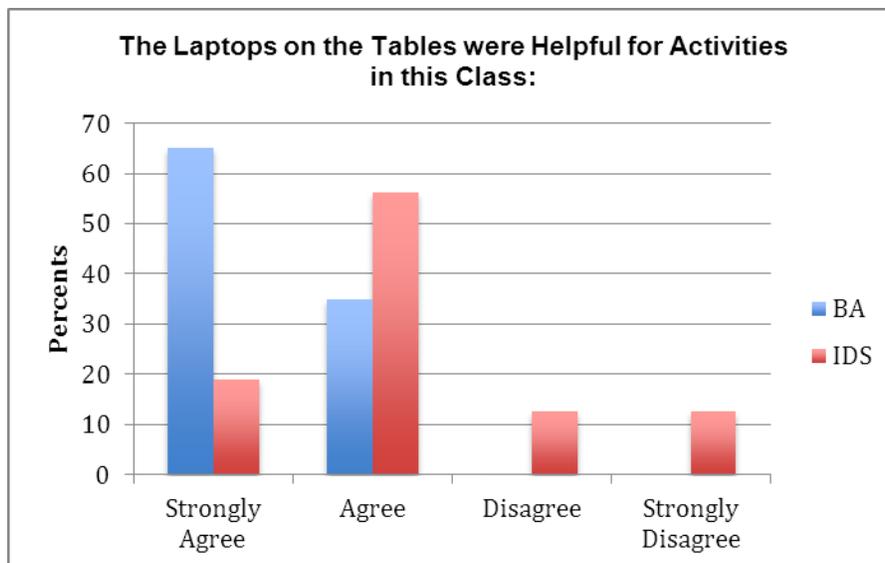
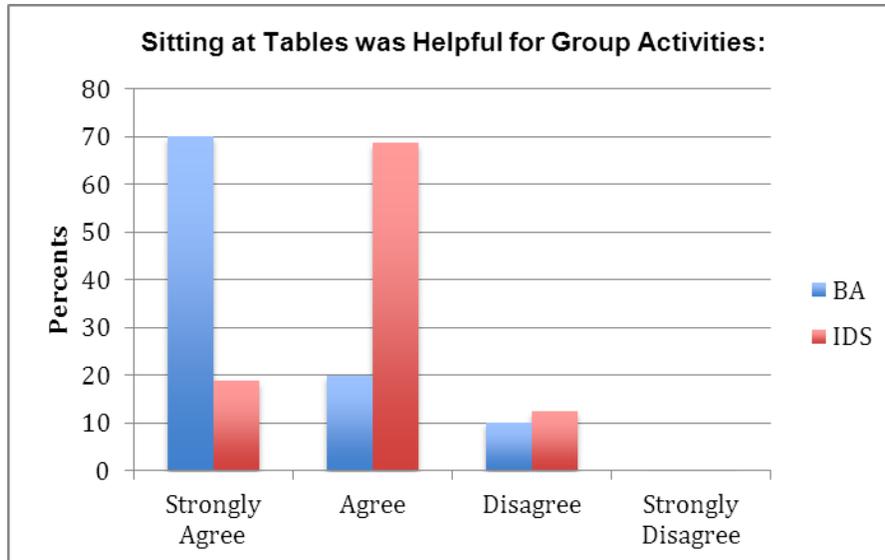
1. Group activities in this class helped me to learn better:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree
2. The monitors were useful for learning in this classroom:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree
3. Sitting at tables was helpful for group activities:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree
4. The laptops on the tables were helpful for activities in this class:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree
5. I was comfortable displaying my work on a monitor:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree
6. This kind of classroom was appropriate for the material we learned in this class:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree
7. How often were there problems with technology that interfered with activities in this class?
 - a. Very Frequently
 - b. Frequently
 - c. Seldom
 - d. Never
8. Coming to class every day was important to my learning:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree
9. Compared to my level of participation in other classes, this class required me to participate more often:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree
10. When you consider this class, were you more or less interested than you are in other classes?
 - a. More Interested
 - b. Less Interested
 - c. About the same
11. Did you participate in more or fewer group activities in this class than in your other classes?
 - a. More group activities in this class
 - b. Fewer group activities in this class
 - c. About the same
 - d. Not sure
12. I would like to take another class in this classroom:
 - a. Strongly Agree
 - b. Agree
 - c. Disagree
 - d. Strongly Disagree

Comments:

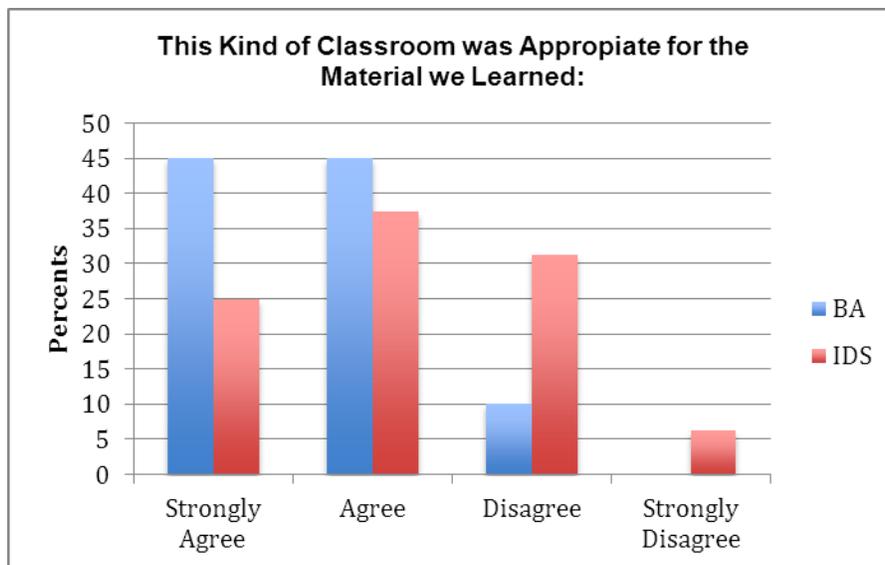
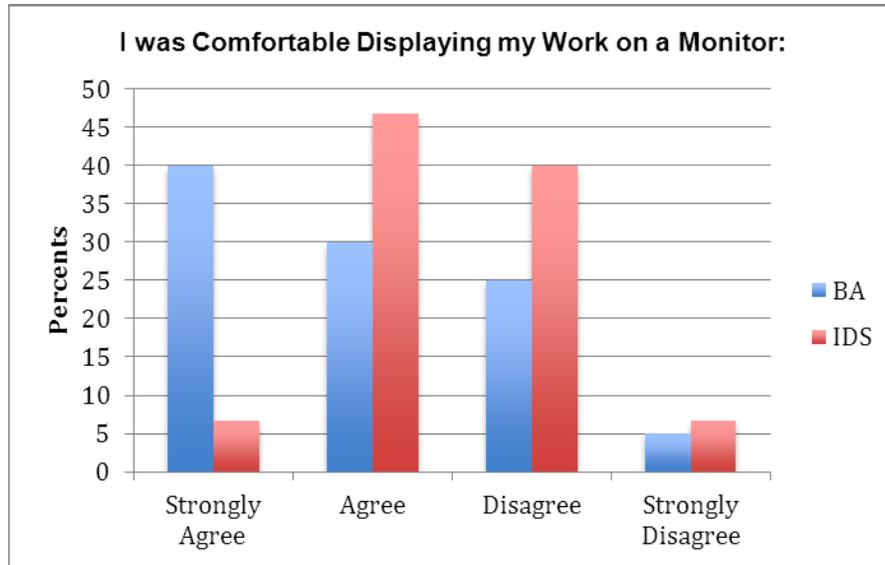
APPENDIX B: End of Semester Survey and Results



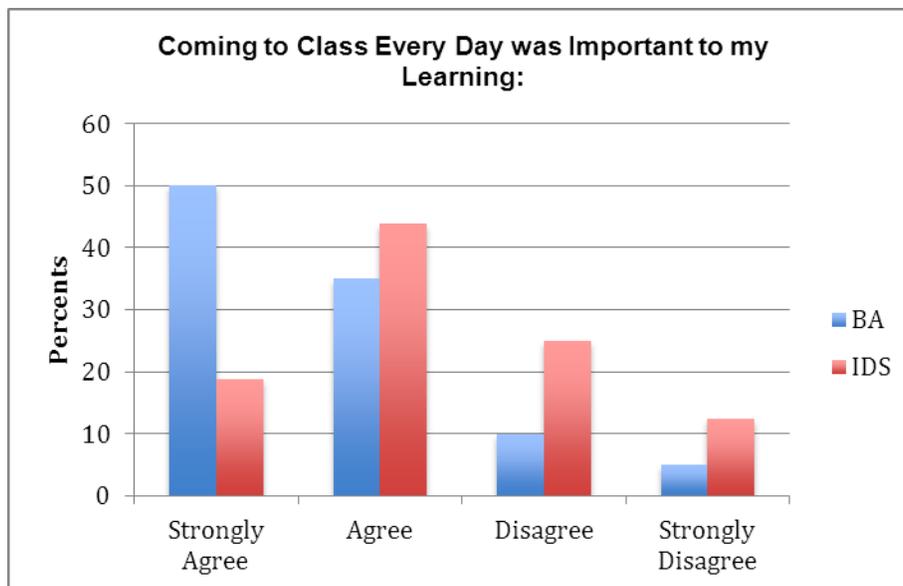
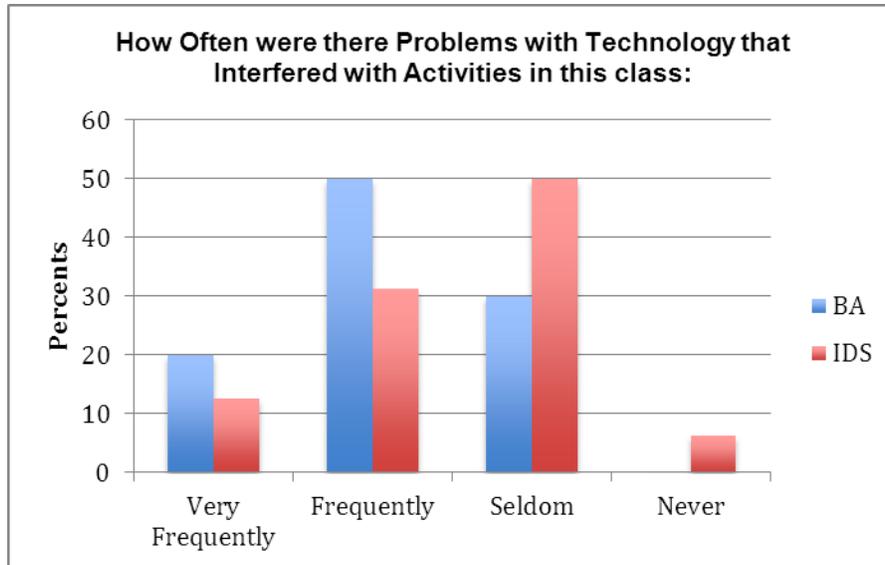
APPENDIX B: End of Semester Survey and Results



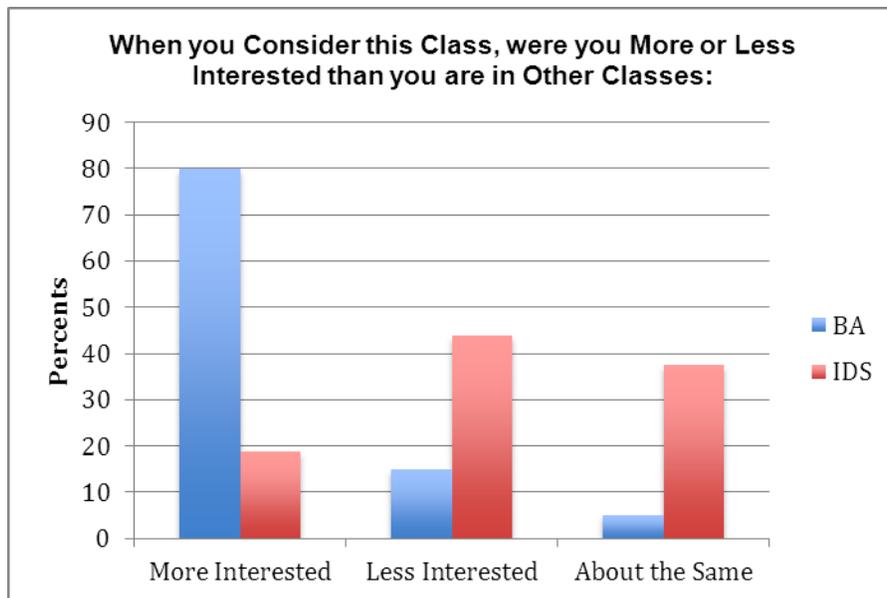
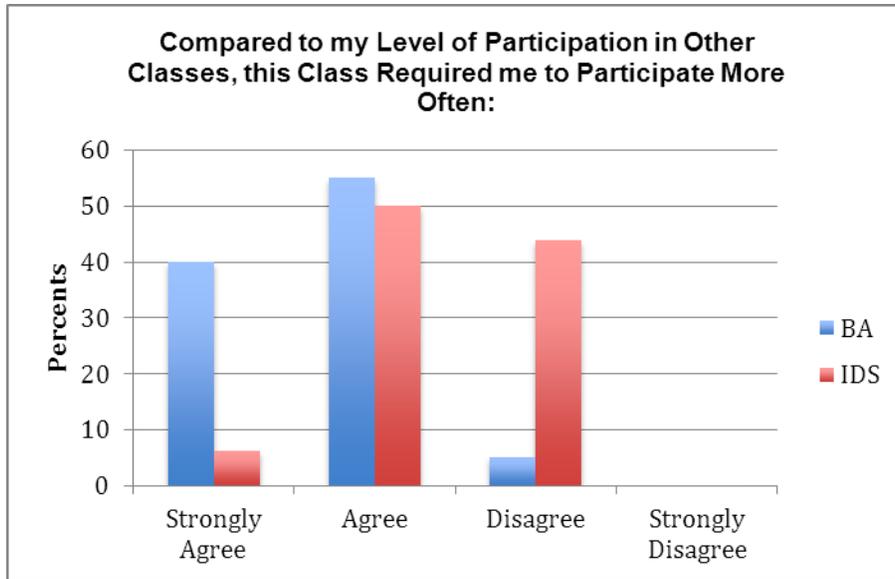
APPENDIX B: End of Semester Survey and Results



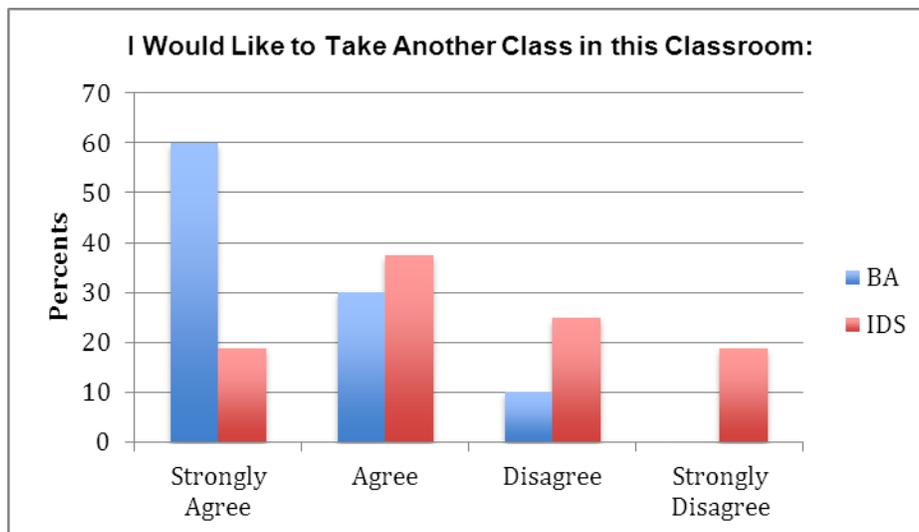
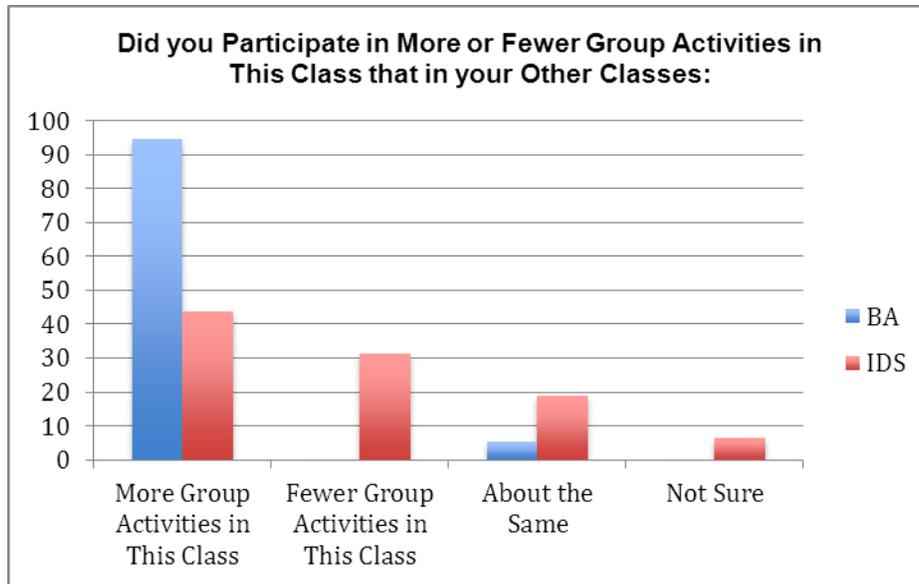
APPENDIX B: End of Semester Survey and Results



APPENDIX B: End of Semester Survey and Results



APPENDIX B: End of Semester Survey and Results



APPENDIX C: End of Semester Instructor Interview Questions

1. Please describe the goals of the class.
2. What were the advantages of teaching in the TBC?
3. What were the disadvantages of teaching in the TBC?
4. Can you recall a time when the activity in the TBC went especially well because of the TBC design? How about a time when it did not go well?
5. What kinds of technology do you regularly use in you teaching?
6. What kind of technology would you like to use in your teaching in the TBC?
7. Would you teach another class in the TBC? Please explain.
8. Did you have to adjust your teaching style or curriculum to teach in the TBC?
9. Would you consider adjusting your teaching style to take a full advantage of technology and design of the TBC?
10. Would you please compare your experience teaching in TBC versus in a conventional classroom?
11. Would you please compare how much time you spent on activities such as group work, lectures in TBC versus a conventional classroom?
12. Did you notice an increase in student participation in TBC when compared to a traditional classroom? How about attendance? Grades?
13. Which feature of the TBC did you use the most? The least?
14. What's your general perception of the TBC?
15. Would you like to see more of these TBC on campus?

APPENDIX D: End of Semester Student Focus Group Questions

The researcher will remind students that the session will be recorded to which they had already agreed in a written form.

1. Was this your first class in a TBC?
2. What was your impression when you first walked into this room? Did you expect your learning experience to be different than in a traditional classroom? How so?
3. How was your learning experience in TBC different than in a traditional classroom?
4. What were the advantages and disadvantages of being in the TBC?
5. What is your perception of being in an active and team-based learning environment? Do you prefer this environment over a lecture style classroom?
6. Was the course material a good fit for the TBC? Please explain why or why not.
7. Do you recall an activity/group project that was especially exciting because of the technology and features of this room?
8. Were you more likely or less likely to attend class held in the TBC? How about participation?
9. Did you encounter any issues with using the laptops or monitors in the TBC? Please describe them.
10. Did issues with technology affected you experience in the TBC?
11. Do you prefer high tables versus low tables?
12. How did the setup of the TBC influence your interactions with other students?
Professor?
13. Would you be willing to take another class in the TBC? How important of a factor would it be?
14. Do you prefer the group-based learning to the traditional learning style?

APPENDIX E: Classroom Observation Protocol, Codes, and Results

Code	Description
Lecture (L)	The instructor delivers course material in a lecture. The instructor may ask a few questions to engage students, but this activity is centered on the instructor delivering information.
Class Announcements, Policies and/or Housekeeping (Ann)	The instructor delivers information about elements of the course that students need to know, but are not about the course content. This code applies to announcements about projects, due dates, and other housekeeping issues.
Breaks (B)	Time to rest.
Collaborative Activity (CA)	Students work together to complete a project in class.
Class Discussion (CD)	Students and instructor talk about an issue related to the course. The goal is for the students to engage more deeply with subject matter by learning from each other's ideas.
Group Discussion (GD)	Students discuss related course material in small groups. Students may or may not share the results of their group discussion with the entire class.
Testing/Exams (E)	Assessment activities.
Videos/Other Media (V/M)	Students watch an online video/DVD or listen to audio.
Individual Work (IW)	Students complete a short assignment such as in-class writing or reading that they complete on their own.
Dismissed Class (DC)	Class is let our early or cancelled.
Missing (M)	Period not observed.
Misc. (Misc)	Activity that does not fit any of the codes listed above. Please make a small description of the activity.

Additional notes:

Questions to consider answering in additional notes:

1. Do students work in groups?
 - If no, how would you summarize the class?
 - If yes, are the students interacting, or are they silently working separately?
2. What is the emotional attitude of students? Are students engaged, neutral, ambivalent?
3. How long is the group work session?
4. Does the instructor visit with the groups? If so, is the instructor observing or interacting with group members? How often does he/she visit with the group?
5. Do students or the instructor use the monitors around the room?
 - If yes, how do they use the monitors?

APPENDIX E: Classroom Observation Protocol, Codes, and Results

Preliminary Results - TBC observations – Spring 2012 (in minutes)		
	Conventional	TBC
	TH 216	TH 100
Lecture	262	234
Announcements	75	61
Break	0	0
Classroom Activity	57	67
Classroom Discussion	72	6
Group Discussion	381	189
Exam	22	52
Video/Media	0	0
Individual Work	24	96
Missing Class	0	0
Misc	13	22
Presentation	228	291
Total	1134	1018

