

2015 Research Report

IMPROVING LEARNING AND INCREASING FEELINGS OF CONNECTEDNESS IN ACTIVE LEARNING ENVIRONMENTS

Provided for:

The Heavener Family Foundation

Researchers:

Tawnya Means, Ph.D.

Michelle Darnell, Ph.D.

Contents

Executive Summary..... 2

Overview 2

Methodology..... 3

Results..... 3

Implications and Future Research 6

Appendix A: Pre-survey..... 8

Appendix B: Post-survey 10

References 12



Executive Summary

Beginning in Fall 2012, students taking courses in the newly redesigned Active Learning Studio were asked to complete a survey at the beginning of the course (“pre-survey”), and to complete a similar survey at the end of the course (“post-survey”), to gather data on their experiences and perceptions pertaining to collaboration in the classroom (see Appendix A and B). This data provides initial evidence that formal inclusion of collaborative work in class increases students’ feelings of being connected to both their instructor and peers, and that students perceive that their learning is ‘easier’ in this environment. The findings of this survey suggest that there is a need for further investigation into mediating and moderating factors that impact the relationships between collaboration and learning as well as collaboration and feelings of connectedness.

Overview

Increasingly, instructors and administrators are considering the impact and role of active learning in the classroom. Active learning methods are described as those that place the responsibility of learning more on students, maximize participation and interaction between students, and encourage students to move beyond surface-level and fact-based approaches to course materials (e.g. Bonwell & Eison, 1991; McCarthy & Anderson, 2000; McKeachie, 1986). Implementation of these approaches are becoming more common in higher education (Michael, 2006; Prince, 2004).

The literature provides evidence that incorporating active learning methods in the classroom is valuable to student learning. Active learning leads to higher-order critical thinking and problem solving skills, enhanced communication skills (Johnson, 2011), a deeper level of thinking than traditional lecture (Fink, 2013; McGlynn, 2005; Michael, 2006; Peck, Ali, Levine, & Matchock, 2006; Yoder & Hochevar, 2005), and an increase in student learning (Hackathorn, Solomon, Blankmeyer, Tennial, & Garczynski, 2011).

There is also evidence in the literature that suggests that cooperative work will increase student learning. Johnson, Johnson, and Smith (1998) recommend specifically teaching students how to work together in teams and multiple studies have shown that cooperation improved learning outcomes relative to individual work (Johnson, Johnson, & Smith, 1998; Springer, Stanne, & Donovan, 1999). Further, evidence suggests that combining cooperative and active learning not only improves students' attitudes toward the subject area, and improves knowledge retention, it also improves connections between students (Johnson & Johnson, 1981; 1989).

Despite growing literature on active learning and collaboration in general, research into the impact of learning in a traditional classroom or room specifically designed to foster active learning is more limited. Building on existing literature, in Fall 2012 and Spring 2013, a selection of courses were taught in the redesigned Active Learning Studio. Students in these classes were asked to report on their previous experiences relating to collaboration in traditional settings, and then were asked to report on their experiences relating to collaboration after completing a course in the Active Learning Studio.

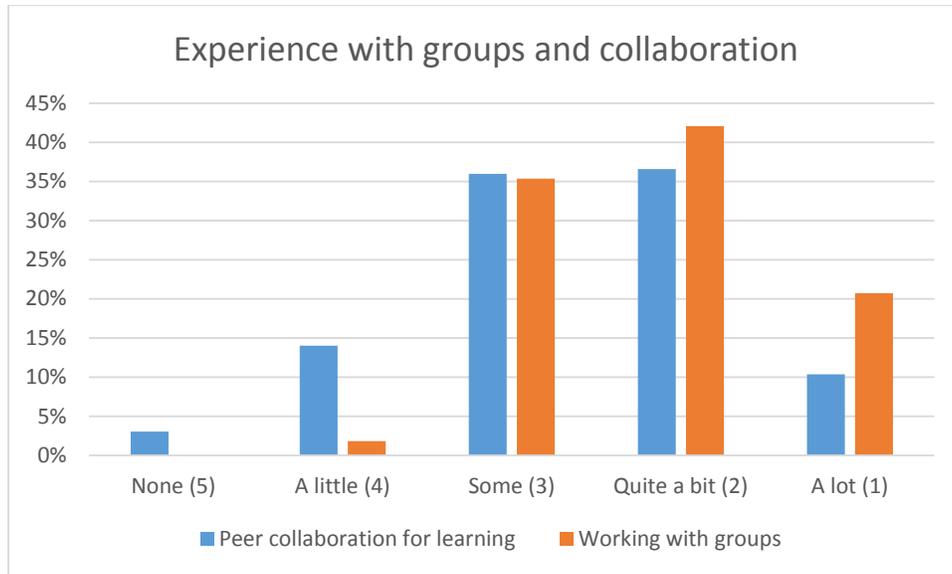
Methodology

Multiple courses (some with multiple sections) with distinct instructors being taught during Fall 2012 and Spring 2013 in the Active Learning Studio constituted the target population for the survey. A total of 271 students were asked to voluntarily complete a survey about their experiences broadly related to traditional learning, working with groups, and collaboration at the start of their course ("pre-survey"), and repeat a similar survey about active learning, working with groups, and collaboration at the end of their course ("post-survey"). 164 complete pre-surveys were submitted, and 105 complete post-surveys were submitted. It is possible that some redundancy may exist in these survey results, given that it is possible some students were asked to complete the surveys in multiple courses, though given the diversity of courses offered redundancy is expected to be minimal or non-existent.

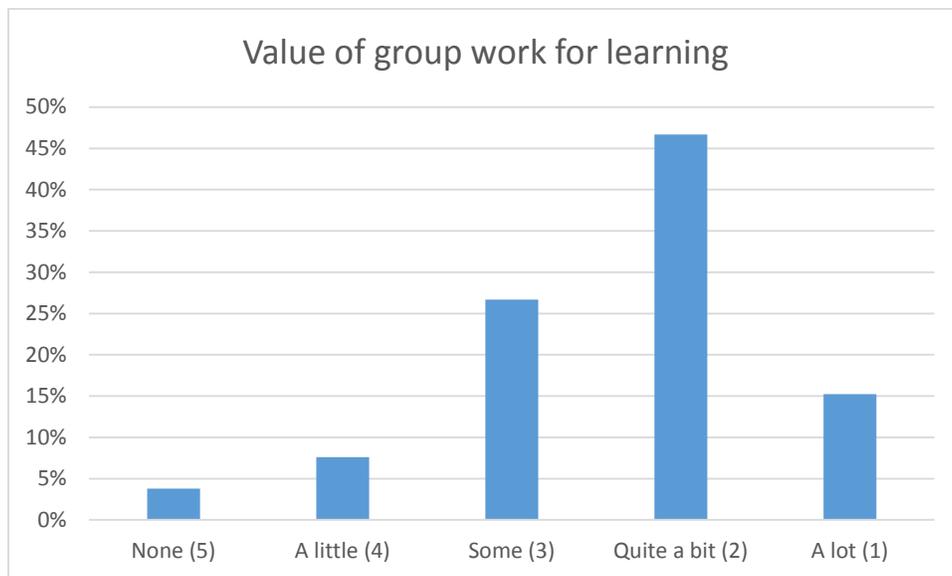
With respect to this report on "Improving Learning and Increasing Feelings of Connectedness in Active Learning Environments", 7 questions on the pre- and post-surveys were isolated (see Appendix A and B). Throughout the following report, when referencing questions on the pre-survey, questions are designated with an "A" (e.g. Q1A), while questions on the post-survey are designated with a "B" (e.g. Q1B).

Results

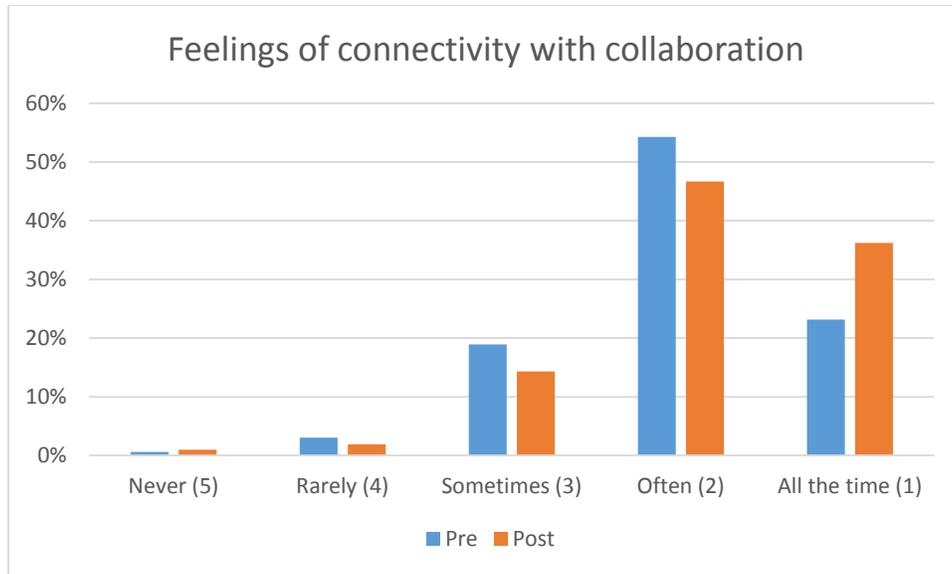
1a. *There is demonstrated need to introduce students to structured collaborative work.* Students in our sample population report a lack of experience working in groups (Q6A) and engaging in peer collaboration (Q3A), with 53% of student responses indicating only 'some' or less experience in peer collaboration, and 37% of student responses indicating only 'some' or less experience working in groups.



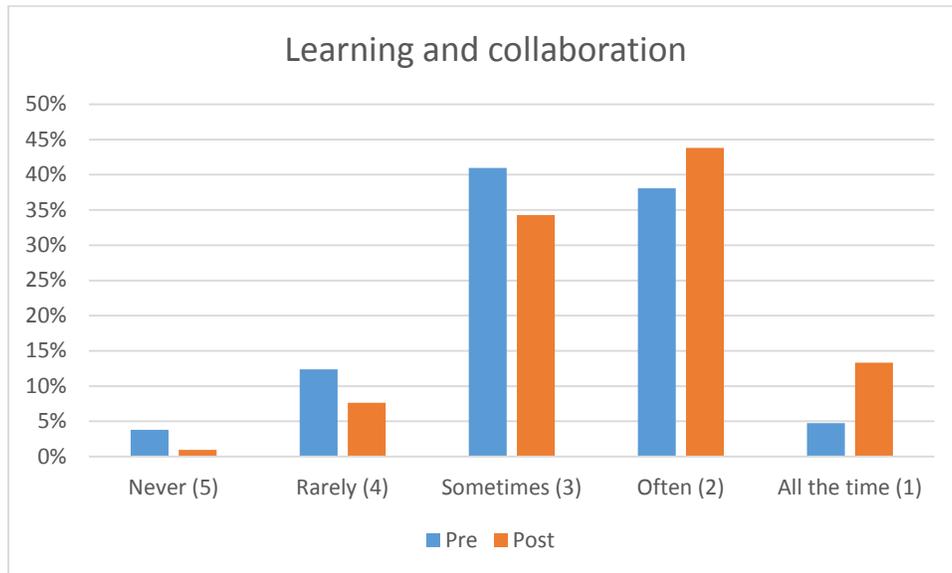
1b. *Students nonetheless recognize the value of group work in learning (Q7A), with 62% of student responses indicating group work brings ‘quite a bit’ or ‘a lot’ of value to their learning experience.*



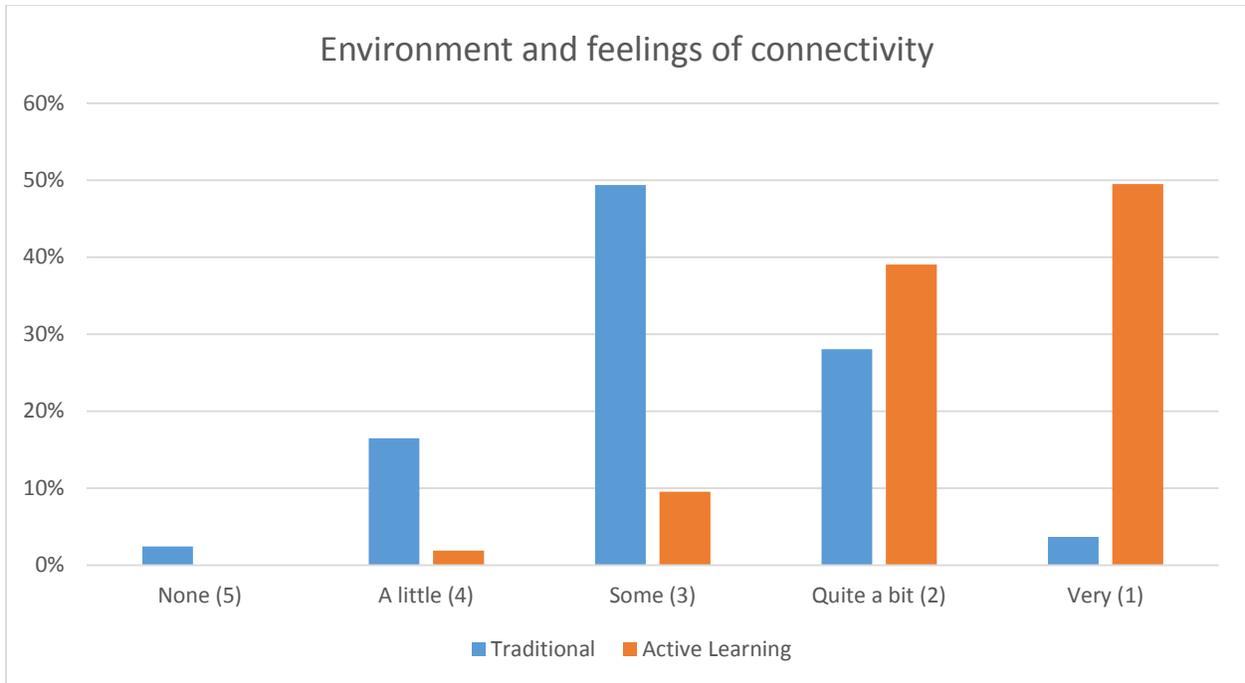
2. *Structured activities involving collaboration increase students’ perception of feeling connected with other students.* On the pre-survey, 77% of student responses indicated peer collaboration ‘often’ or ‘always’ makes it easier to connect with other students (Q5A), suggesting that students easily recognize collaborations lead to increased feelings of connectivity with peers. This recognition, however, was increased to 83% on the post-survey (Q5B), suggesting more formal collaboration in an active learning environment makes it easier for students to connect with other students.



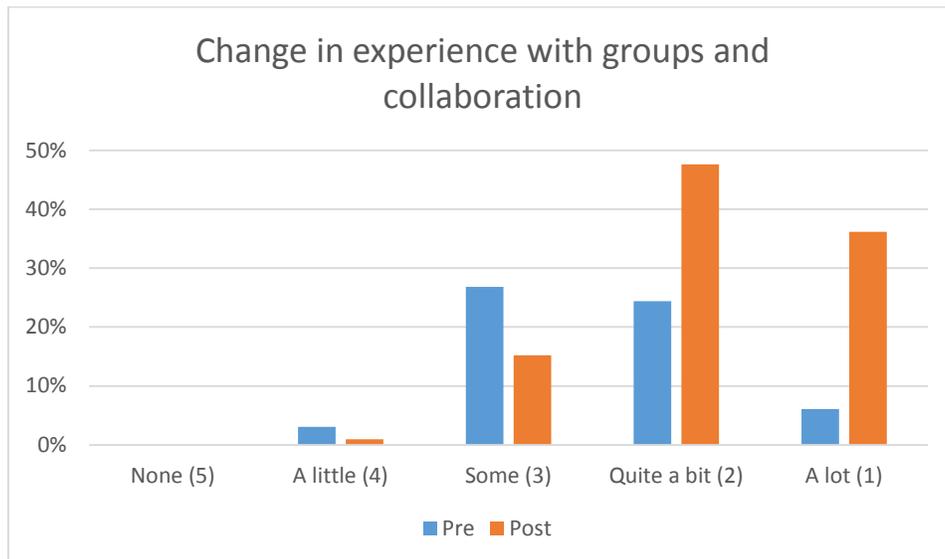
3. *Incorporating structured collaboration in an active learning classroom increases learning.* When asked “Does peer collaboration make it easier for you to learn?” (Q4), the percentage of post-survey responses indicating ‘all the time’ and ‘often’ increased by 9% and 6%, respectively, from the pre-survey. Additionally, the percentage of responses indicating ‘rarely’ or ‘never’ decreased by 5% and 3%, respectively, from the pre-survey to the post-survey.



4. *There is evidence that the learning environment has an impact on students’ feelings of connectedness.* Comparing pre- and post- survey responses on combined responses for questions Q1 and Q2, reports of feeling ‘very’ connected to their instructor and peers increased by 46% in an active learning environment over their feelings of connectedness in traditional learning environments. Reports of feeling ‘quite a bit’ connected increased by 11%.



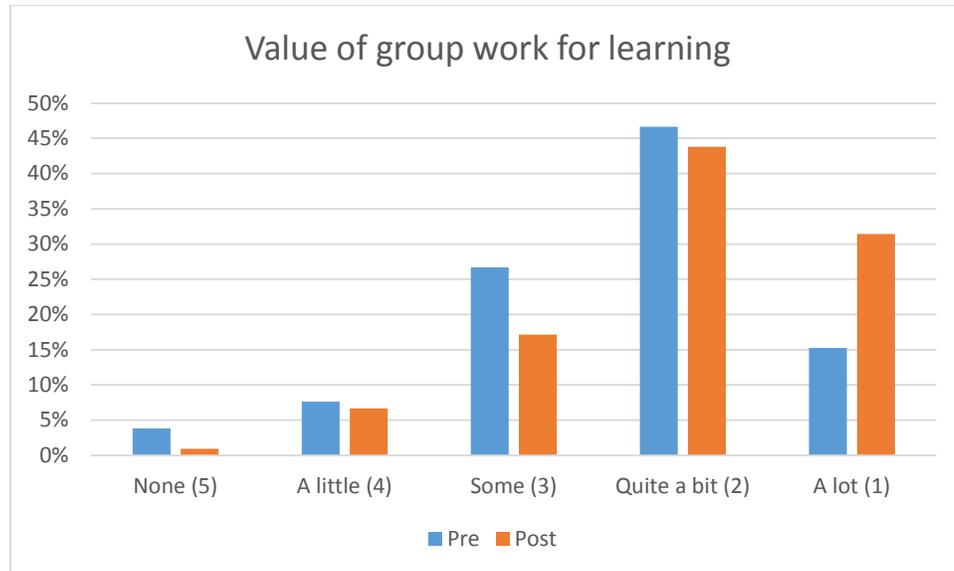
5. *There is a demonstrable impact on students when courses incorporate structured collaboration into an active learning environment.* Students recognized a change in their experience with peer collaboration and groups as a result of engaging in collaborative active learning. When responses for Q3 and Q6 are combined, post-survey results show a 30% increase in students believing they have ‘a lot’ of experience with groups and peer collaboration, and an additional 23% increase in students describing themselves as having ‘quite a bit’ of experience.



Implications and Future Research

The importance of collaboration on both learning and feeling connected to instructors and peers has been suggested by the data collected. There is also evidence that the learning environment has an

impact on both collaboration and connectivity between instructors and students. Before students' active learning experience (Q7A), they thought group work was valuable, however, after their experience in the Active Learning Studio (Q7B), more students consider group work valuable, with a 16% increase in 'a lot' responses.



The question of how to more specifically support collaborative efforts needs further study. In particular, the following conditions have been identified as potentially impacting learning and feelings of being connected to others: synchronous / asynchronous collaborations, physical space within which collaborations take place, virtual space within which collaborations occur, and the types of assignments that require collaborative efforts.

Appendix A: Pre-survey

Q1: How connected do you feel to your instructor during class in a typical college classroom?

- Very (1)
- Quite a Bit (2)
- Some (3)
- A little (4)
- None (5)

Q2: How connected do you feel to other students in a typical college classroom?

- Very (1)
- Quite a Bit (2)
- Some (3)
- A little (4)
- None (5)

Q3: How much experience do you have with peer collaboration for learning?

- A lot (1)
- Quite a Bit (2)
- Some (3)
- A little (4)
- None (5)

Q4: Does peer collaboration make it easier for you to learn?

- All of the Time (1)
- Often (2)
- Sometimes (3)
- Rarely (4)
- Never (5)

Q5: Does peer collaboration make it easier for you to connect with other students?

- All of the Time (1)
- Often (2)
- Sometimes (3)
- Rarely (4)
- Never (5)

Q6: What is your experience working with groups?

- A lot (1)
- Quite a Bit (2)
- Some (3)
- A little (4)
- None (5)

Q7: How much value to your learning is there when you participate in group work?

- A lot (1)
- Quite a Bit (2)
- Some (3)
- A little (4)
- None (5)

Appendix B: Post-survey

Q1: How connected do you feel to your instructor during class in the active learning studio classroom?

- Very (1)
- Quite a Bit (2)
- Some (3)
- A little (4)
- None (5)

Q2: How connected do you feel to other students in an active learning studio classroom?

- Very (1)
- Quite a Bit (2)
- Some (3)
- A little (4)
- None (5)

Q3: How much experience do you have with peer collaboration for learning?

- A lot (1)
- Quite a Bit (2)
- Some (3)
- A little (4)
- None (5)

Q4: Does peer collaboration make it easier for you to learn?

- All of the Time (1)
- Often (2)
- Sometimes (3)
- Rarely (4)
- Never (5)

Q5: Does peer collaboration make it easier for you to connect with other students?

- All of the Time (1)
- Often (2)
- Sometimes (3)
- Rarely (4)
- Never (5)

Q6: What is your experience working with groups?

- A lot (1)
- Quite a Bit (2)
- Some (3)
- A little (4)
- None (5)

Q7: How much value to your learning is there when you participate in group work?

- A lot (1)
- Quite a Bit (2)
- Some (3)
- A little (4)
- None (5)

References

- Bonwell, C., & Eison, J. (1991). *Active learning: Creating excitement in the classroom* (Vol. 80819). Retrieved from http://www.ydae.purdue.edu/lct/hbcu/documents/Active_Learning_Creating_Excitement_in_the_Classroom.pdf
- Fink, L. D. (2013). *Creating significant learning experiences: An integrated approach to designing college courses*. John Wiley & Sons.
- Hackathorn, J., Solomon, E. D., Blankmeyer, K. L., Tennialb, R. E., & Garczynski, A. M. (2011). Learning by doing: An empirical study of active teaching techniques, *The Journal of Effective Teaching*, 40.
- Johnson, D. W., & Johnson, R. T. (1981). Effects of cooperative and individualistic learning experiences on interethnic interaction. *Journal of Educational Psychology*, 73(3), 444.
- Johnson, D. W., & Johnson, R. T. (1989). *Cooperation and Competition: Theory and Research*. Edina, MN: Interaction Book Company.
- Johnson, P. A. (2011). Actively pursuing knowledge in the college classroom. *Journal of College Teaching & Learning (TLC)*, 8(6), 17–30.
- Johnson, D., Johnson, R.T., and Smith, K. (1998). Cooperative learning returns to college: What evidence is there that it works? *Change*, 30(4), 26–35.
- McCarthy, J. P., & Anderson, L. (2000). Active learning techniques versus traditional teaching styles: two experiments from history and political science. *Innovative Higher Education*, 24(4), 279–294.
- McGlynn, A. P. (2005). Teaching Millennials, our newest cultural cohort. *Education Digest: Essential Readings Condensed for Quick Review*, 71(4), 12–16.
- McKeachie, W. J. (1986). *Teaching and learning in the college classroom: A review of the research literature* (Vol. 86), University of Michigan Press.
- Michael, J. (2006). Where's the evidence that active learning works? *Advances in Physiology Education*, 30(4), 159–167. Retrieved from <http://advan.physiology.org/content/30/4/159.abstract>
- Peck, A. C., Ali, R. S., Levine, M. E., & Matchock, R. L. (2006). Introductory psychology topics and student performance: Where's the challenge? *Teaching of Psychology*, 33(3), 167–170.
- Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, 93(3), 223–231.
- Springer, L., Stanne, M. E., & Donovan, S. S. (1999). Effects of small-group learning on undergraduates in science, mathematics, engineering, and technology: A meta-analysis. *Review of Educational Research*, 69(1), 21–51.
- Yoder, J. D., & Hochevar, C. M. (2005). Encouraging active learning can improve students' performance on examinations. *Teaching of Psychology*, 32(2), 91–95.