

**Induction Ceremony Keynote Speech:
Starring Roles: High-achieving Students' Experiences
in Collaborative Groups**

Are Collaborative Educational Experiences Valuable? To Whom?

Today's college students are more likely than ever to have future employment in mind when they choose their college, their courses, and their majors.¹ Undergraduate students are also increasingly likely to seek out applied learning experiences, such as internships in an effort to make themselves more attractive to future employers. In 2014, 60 percent of graduating seniors reported having participated in an internship program while in college, up from 53 percent of graduating seniors in 2007.²

National surveys of employers confirm that they are more likely to hire recent college graduates who have completed an applied learning experience such as an internship.³ However today's undergraduates may not know that collaborative research projects done with peers are another form of applied learning that employers regard very favorably. Four in five employers say they are more likely to consider hiring a recent college graduate who has collaborated with their peers on a research project. About four in five employers look for evidence of ability to work effectively in a team when reviewing resumes of job applicants.⁴

Collaborative pedagogies such as group projects have become quite common, even ubiquitous, at the college level. In 2014, more than 95 percent of graduating seniors reported having worked on a group project with classmates either occasionally or frequently during college.⁵ A substantial body of research, across many different disciplines, suggests that collaborative pedagogies not only have positive effects on students' "soft skills," such as the

ability to work well in teams, but also have positive effects on students' mastery of course content.⁶

My own research on collaborative pedagogy confirms that student learning is enhanced by group projects.⁷ This research includes data from more than a decade of using group projects to teach one of my courses, sociological research methods. For the first nine weeks in that course, students learn about research design, measurement, sampling, the ethical issues involved in doing research on human subjects, and so on. Students are tested on this material on midterm exams. For the last four to five weeks of the course, they are assigned to small groups. Each group designs a research project, collects and analyzes the data, presents their findings to the class, and receives a group grade for their project. Instead of taking a final exam in the course, each student writes a final paper describing and critiquing their group's project, and proposing a follow-up research project. Students work on these final papers as individuals, not in groups, so that I can make a summative assessment of their individual learning in the course.

One of the key findings of my research so far is that both high- and low-achieving students benefit from having been involved in a high-quality group project. When students were involved in a high-quality project, their performance on the final paper was better than one would expect given their individual characteristics and prior performance on the midterm exams. High-achieving students learned *more* from having been involved in a high-quality group project than the lowest-achieving students.⁸ For example, if a student's average grade on the midterm exams is a B or higher, and if their group project earned an A, their grade on the final paper was typically *half* a letter grade higher than students with the same average grade on the midterm exams but whose group project earned a B instead of an A. In contrast, students with an average grade on the midterm exams of a C- or lower get a smaller bump on their final paper grade—just

a *third* of a letter grade—from having been involved in a group project that earned an A.

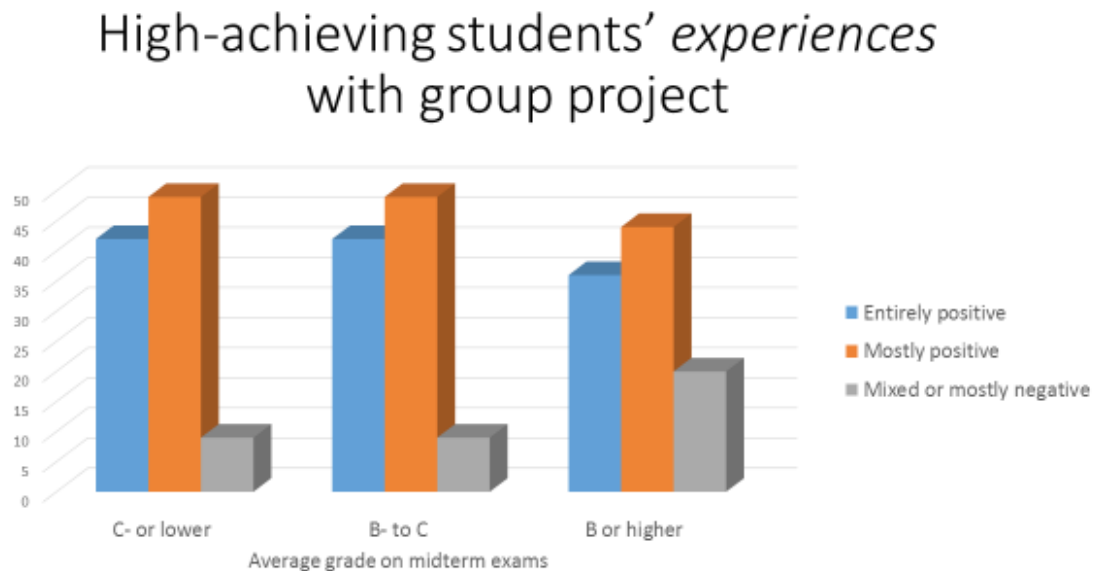
<i>IF student's average grade on midterms:</i>	<i>AND IF group project earns:</i>	<i>THEN student's grade on final paper</i>
is B or higher	an A	is <i>half</i> a letter grade higher <i>than if</i> the group project had earned a B
is C- or lower	an A	is a <i>third</i> of a letter grade higher <i>than if</i> the group project had earned a B

Students Tend to Have Positive Experiences with Collaborative Pedagogies, But ...

If, as my research suggests, students' learning is enhanced by participating in group projects and high-achieving students tend to benefit the most, one might expect high-achieving students to be even *more* likely than other students to report positive overall experiences with group projects. However previous studies suggest that some students have negative perceptions of or negative experiences with collaborative learning, or "group work," and that this may be especially true for high-achieving students.⁹ Again, my own research bears this out. To measure my students' experiences with group projects, for more than a decade I have also asked them to complete a confidential assessment of the group process. One of the questions in that assessment is, "How did the team process work out? Was it mostly a positive or negative experience for you?" Students write answers to these and a few other questions about the group process and turn them in along with their final paper.

The great majority of my students—at all achievement levels—reported entirely positive or mostly positive experiences with the group project. However the high-achieving students were

twice as likely as all other students to report mixed or mostly negative experiences with their collaborative groups.



Accounting for Variation in High-achieving Students' Experiences with Group Projects

What accounts for variation in high-achieving students' experiences with collaborative pedagogy? What sorts of conditions are associated with high-achieving students having negative rather than positive experiences with collaborative groups? You might expect that high-achieving students who are in groups with other high-achieving students would have the more positive experiences, and in fact that does turn out to be part of the story in my data.

Nearly all of the groups are fairly heterogeneous in terms of prior achievement on the midterm exams, because I assign the groups rather than allowing students to choose their own. So, in each group there is usually just one high-achieving "star," and by "star," I mean a student who got an A or an A- on at least one of the midterm exams. It seems logical to expect that many of these "stars" would take a leadership role in their research groups, but I wondered if there was

variation in how these “stars” approach leadership roles, and whether that might help us understand which high-achieving students have more positive experiences and which have more negative experiences. To get at this question, I’ve begun analyzing students’ responses to two other items in the confidential assessment of the group process:

“Compare yourself and other members of the team on the effort you put into the research project, and the extent to which you studied course materials and knew what to do for the research project.”

“Based on the work effort and knowledge level you discuss above, grade yourself and each member of the team.”

Some interesting patterns have begun to emerge in my analyses of the data. After coding the responses of all the students in a particular group to those two questions, it seems that academic stars tend to take on one of five different leadership roles in their research groups.

Star as modest leader: In these groups, the academic star described a very evenly balanced workload and equally important contributions from all team members, did not describe themselves as a leader, and gave everyone in their group the same grade as themselves. However, the other group members did clearly identify the “star” as the leader on the project, even when they also commented on the equal sharing of the work, and often gave the star a higher grade than other members of the group.

Ensemble cast: The ensemble cast dynamic is similar to the “modest leader” dynamic in that the academic star does not claim to have taken a leadership role, nor do they point to anyone else as the leader. Where this dynamic is different is that the other group members also do not identify any individual or even a pair of individuals as a leader, and generally give everyone, or most everyone, in the group the same grade. Thus all of the group members tend to present a picture of an ensemble cast.

Star as co-leader: In these groups, the academic star describes themselves and one other

person as the co-leaders, and gives themselves and their co-leader higher grades than other group members. Other group members generally agree with this characterization. There are several variants of this dynamic: the star might “recruit” a co-leader, another group member might “step up to” the role of co-leader with the star, or the star might “hand off” the leadership role to another student at some point during the project.

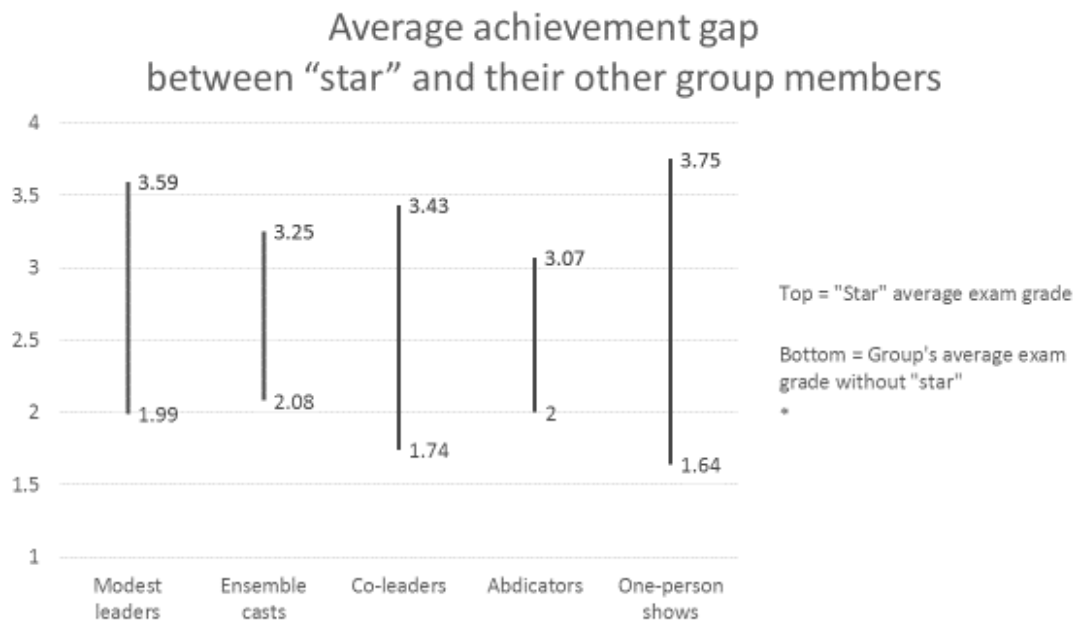
Star abdicates to understudies: In this dynamic, the academic star does not claim they took a leadership role, most group members identify one (or more commonly, two) of the other students in the group as the leader or co-leaders, and most members gave higher grades to these “understudies” than to the academic star.

One-person show: In these groups, the academic star identifies him or herself as the leader, states that he or she did most of the work (often because they chose to), and gives him or herself the highest grade in their group. Other group members generally acknowledge that the star did more work and often (but not always) give them the highest grade.

The only groups where stars reported *entirely positive* experiences were groups with modest leaders and ensemble casts. No stars reported mixed or mostly negative experiences in groups with these two kinds of leadership dynamics. The next best experiences for stars were in groups where they were co-leaders or abdicators. All of the stars in these groups reported mostly positive experiences. Finally, stars’ worst experiences were in groups where stars were a one-person show; all of these stars reported mixed or mostly negative experiences with the group project.

One of the patterns I noticed is that stars who ended up in a “one-person show” kind of leadership role typically were very high achievers—overall, these students tended to have some of the highest average grades on the midterm exams—and thus they often had teammates whose

achievement on the exams was much lower than their own. This is illustrated in the chart below.



The number at the top of the far right-hand line is the average exam grade of “stars” in one-person shows: 3.75, or an A- . The number at the bottom of that line is the average exam grade of the rest of the students in those groups: 1.64, or about a C- . The length of the lines indicates the average size of the “achievement gap” between the star and the other members of their group. Thus, stars in one-person shows, on average, had the largest “achievement gap” to contend with—about two full letter grades difference. In contrast, stars who “abdicated” a leadership role tended to have somewhat lower average grades on the midterm exams (3.07, or roughly a B), and the achievement gap in those groups was much smaller, only about one letter grade different.

Looking at the magnitude of the average “achievement gap” between a “star” and the rest of their group can help shed some light on why stars vary in their approach to leadership roles in

their groups, and thus vary in the kinds of experiences they report with the group project. Stars who “abdicated” from leadership may have accurately assessed that other group members were nearly as capable as themselves, and not felt much reason to step into a leadership role. Stars who turn the group project into a “one-person show” may believe that this was the only way to successfully pull off the group project task.

Alternative Strategies for Large Achievement Gaps in Collaborative Groups

However, the group with the single biggest achievement gap was actually a “co-leaders” group, which suggests that there are alternative strategies for dealing with a large achievement gap between a star and the rest of the group. Kris¹⁰ had an average midterm exam grade that was roughly between an A- and a B+ but she ended up in a group where the other students’ overall average grade on the midterms was a D, a difference of about two and a half letter grades. Kris found a co-leader among her group members: Emily, who had averaged between a D+ and a C- on the midterms. All of the other students in the group also acknowledged that Emily was a co-leader. Surprisingly, Kris reported a mostly positive experience:

I think that the team process worked out pretty well. I found it to be a generally positive experience. My group members and I all got along very well, and collaborated to make a very fascinating and successful research project. While extremely challenging at times...it was extremely rewarding at the end...and I am grateful for the opportunity to have been able to do this.

In her comments, Kris singled out her co-leader’s contributions as especially important: “I think that Emily and I in particular worked really well in tandem with one another, discussing our ideas and suggestions for what to do with the research project.”

One of the highest-achieving students I have ever had, in a group with a sizable achievement gap, took a “modest leader” approach. Amy had a perfect A average on the midterm

exams, compared to an overall exam average of a low C+ for the other three members of her group. Amy's group members all acknowledged her as the clear leader of the group. They said she definitely did the most work even though all of them reported working very hard as well. However Amy did not describe herself as a leader, commented at length on the equal contributions of the team members, and reported an entirely positive experience:

This project is one of the things I have been most proud of in all of college precisely because of how well we worked together as a team...In group situations I find that I often have to carry a group because I care about the task at hand more than the other students I am working with. This was not the case with this project, as I believe everyone showed equal dedication and enthusiasm for the project.

Some of the stars in "one-person shows" who reported mixed experiences with the group project realized in hindsight that they could have taken a different approach to their leadership role in their groups. Juliana had a low A- average on the midterm exams, and her group members had an overall C- average. Her assessment of her experience with the group project included a detailed list of the many tasks she took on and several comments on her deep frustration with her team members, who she described as less skilled, less prepared, and sometimes "not willing to think for themselves." However, Juliana's closing comments were:

If I could re-do this project from the start I would have tried to let some control go. I would probably have found myself in a leadership position within the group...but I would have tried to delegate responsibilities better and believe in my teammates a little bit more because they are smart, motivated students who are willing to try their best.

In a similar vein, Jackie (who faced an achievement gap of more than two full letter grades in her group) wrote, "In the future I would try not to take the lead when I am worried about where we are going and instead wait a bit longer to see where we might end up, because everyone had a lot of really interesting comments and ideas."

“For best results...”

In conclusion, I would offer these suggestions to high-achieving students about how to have an optimal experience with group projects. First, if you are blessed with strong colleagues—and even if you are not—seek opportunities for ensemble work. In essence, “modest leaders” like Amy *acted as if* they were part of an “ensemble cast,” even though their group members saw them as a leader. My data suggest that high-achieving students who take on one of these two types of leadership roles—modest leaders and ensemble casts—are likely to have the best experiences with collaborative pedagogies such as group projects. Second, try to avoid turning the group project into a “one-person show,” even when you are in situations where you clearly have a stronger skill set than the other group members. My research suggests that this strategy is very likely to result in a negative or at best a mixed experience for high-achieving students. Finally, look for potential “co-leaders” whenever you can. Believe in your colleagues’ abilities—they will often step up if you do.

Keeping these three suggestions in mind should serve students well, not only in their college courses but also in the workplaces they will inhabit in the future. As I noted above, a 2015 national survey of employers found that teamwork skills were one of the six areas employers rated as most important when reviewing college graduates’ job applications. Although a majority of undergraduates think their college education prepared them well to work with others in teams, only about one-third of employers agreed.¹¹ I hope that these findings will help students—especially high-achieving students—make the most of their experiences in collaborative learning groups in college, and thus improve their position in the labor market after graduation.

1. Eagan, Kevin, Ellen Bara Stolzenberg, Abigail K. Bates, Melissa C. Aragon, Maria Ramirez Suchard, and Cecilia Rios-Aguilar. 2015. *The American Freshman: National Norms Fall 2015*. Los Angeles: Higher Education Research Institute, UCLA; Diane L. Pike et al. 2017. *The Sociology Major in the Changing Landscape of Higher Education: Curriculum, Careers, and Online Learning*. Washington DC: The American Sociological Association, 8-10.
2. Data for 2014 are from the Cooperative Institutional Research Program at the Higher Education Research Institute at UCLA, 2014 College Senior Survey. Retrieved June 15, 2017. (<https://www.heri.ucla.edu/PDFs/CSS-2014-All-Bac-Report.pdf>). Data for 2007 are from Hanna Spinosa et al. 2008. *Findings from the 2007 Administration of the College Senior Survey (CSS): National Aggregates*. Higher Education Research Institute, University of California, Los Angeles.
3. Hart Research Associates. 2015. *Falling Short? College Learning and Career Success: Selected Findings from Online Surveys of Employers and College Students Conducted on Behalf of the Association of American Colleges & Universities*. Washington, DC: Hart Research Associates. Retrieved June 14, 2017. (<https://www.aacu.org/leap/public-opinion-research/2015-survey-falling-short>).
4. Hart Research Associates. 2015. *Falling Short? College Learning and Career Success*.
5. Cooperative Institutional Research Program at the Higher Education Research Institute at UCLA, 2014 College Senior Survey. Retrieved June 15, 2017. (<https://www.heri.ucla.edu/PDFs/CSS-2014-All-Bac-Report.pdf>).
6. For useful overviews, see William Rau and Barbara Sherman Heyl, "Humanizing the College Classroom: Collaborative Learning and Social Organization Among Students" *Teaching Sociology* 18, no. 2 (1990), 141-155; and Elizabeth G. Cohen, "Restructuring the Classroom: Conditions for Productive Small Groups" *Review of Educational Research* 64, no. 1 (1994), 1-35.
7. Renee A. Monson, "Groups That Work: Student Achievement in Group Research Projects and Effects on Individual Learning" *Teaching Sociology* 45, no. 3 (2017), 240-51.
8. Monson, "Groups That Work", 248-9.
9. Susan B. Fiechtner and Elaine A. Davis, "Why Some Groups Fail: A Survey of Students' Experiences with Learning Groups" *Journal of Management Education*, 9, no. 4 (1984), 58-73; Junko Shimazoe and Howard Aldrich, "Group Work Can Be Gratifying: Understanding and Overcoming Resistance to Cooperative Learning" *College Teaching* 58 (2010), 52-7.
10. This and other names of students are pseudonyms.
11. Hart Research Associates. 2015. *Falling Short? College Learning and Career Success*.