Which Students and Groups Collaborate Successfully?

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Abstract

Nearly 180 introductory psychology students were assigned to 25 groups. Groups were instructed how to coordinate efforts to conduct web searches and write papers overviewing psychology. Successful collaboration, measured by project performance, peer ratings of contributions, and attitudes, was partially predictable from personality scores. This indicated what kind of students are more likely to collaborate successfully.
Instructional Problem

One problem I've faced with burgeoning class sizes in the 1990s has been finding ways to restore the critical thinking and collaborative work that existed when my introductory psychology (PSY 2) class was smaller. In the 1980s my strategy for encouraging critical thinking and collaborative work was to assign students to small debate teams to research and debate controversial topics in psychology. These debates required locating information beyond what was found in the course textbook and coordinating efforts among the team members. But by 1994, cost cutting placed all 186 PSY 2 students in the auditorium, making debates logistically infeasible.

Possibilities for Technology-Managed Collaboration in Large Classes

In 1996 I initiated an Empower project to restore critical thinking and collaboration in my large Psychology 2 class. I believed that teaching students to surf the web for psychological information would lead them to discover perspectives on key course concepts in addition to those presented by the instructor and textbook. I also hoped that as students discussed the course concepts and coordinated efforts to create a group report, their comprehension of course material would increase. I assumed that keeping track of the students' activities would be possible with a spreadsheet program and email. The plan was to make myself available for consultation by email during my waking hours, and to have all assignments emailed to me. As I received the emailed assignments I would grade them, record the grade in my spreadsheet file, and provide email feedback. Because this was such a large undertaking, I planned an extensive evaluation of the project to see if the
return was worth the effort. To my mind, the current popularity of any pedagogical technique says nothing about its validity, which needs to be established empirically.

Description of the Project

[A thoroughly detailed description of the project can be found on my web site at: http://cac.psu.edu/~j5j/persona/courses/courses.html#Empower96. You can follow links on this page to see project elements such as detailed instructions to students, the course syllabus, and the final report submitted to the Schreyer Institute, which supported the project.]

On the first day of class I assessed computer attitudes and literacy with a questionnaire and entered the questionnaire responses into a database program. I sorted students according to the strength of their reported computer skills and attitudes toward group work, and created 25 groups of 7-8 students, roughly equated for computer skills and attitudes. On the second class meeting, I posted signs and rosters around the perimeter of the auditorium for students to find their groups. The first meeting was informal; in the second and third meetings students received the questions they were to research and a detailed description of expectations.

In lieu of group training exercises, I developed and distributed one of two handouts to each group: either a handout on directive skills or a handout on supportive skills. I set aside a portion of each class during the first three weeks for groups to meet to coordinate their efforts.

Assessing Outcomes
Multiple assessments of each student's performance clearly indicated that some students and some groups did very well, and some did not. On the same multiple-choice test I used in the previous year, the class scored 52% (it did not count toward their grade) compared to the previous year's 69%. But students rated as the best contributors to their groups earned the highest test scores. According to their scores on a standardized personality test, the best contributors were relatively extraverted, open to feelings, and especially conscientious. About 20% of the papers were excellent or outstanding; 35% deserved a grade of B, 33%, a C, 3% a D, and 9% failed to turn in a paper. The best papers came from students who were emotionally stable, assertive, open to aesthetics and ideas, and, again, especially conscientious. At the end of the course, negative comments about group work outweighed positive comments 3:1. Nonetheless, students who were emotionally stable, gregarious, excitement-seeking, and not open to aesthetics and feelings tended to enjoy the group work.

One unexpected finding was that the "training handouts" actually made a difference: groups who received supportive skill training had greater participation from members than groups who received directive skill training. Equal participation was greater in groups whose members tended to be more impulsive, active, and immodest.

Reflections and Suggestions for the Future

The two greatest challenges in this project were (1) finding time it took to keep track of so many students, and (2) dealing with groups whose members fought or contributed unequally or copied answers from each other. One solution might be more extensive
training in supportive skills, but this would be bought at the expense of class time. The alternative I recommend is to make group research projects optional.

A general recommendation I would make concerning class activities is to provide as much freedom and choice as feasible for the students. Students enjoy technology-based research much more when they have the freedom to choose their own topics. Furthermore, based on additional experiences in other psychology courses (PSY 243 and PSY 438), I find that students do better when they can choose which students to work with in the small groups. Group work is not for everyone; not everyone learns best that way. I'm currently developing online, self-administered tests of personality and learning style to help students identify how they learn best. Flexibility, choice, and freedom: these concepts are central to technology-based, distributed learning. To respect individual differences in learning styles, I think we need to allow as much flexibility, choice, and freedom as possible in collaborative group work.