Resources for Team Projects

How do I.....

1. Introduce and frame teamwork in my course?
   Some suggestions for introducing team work in your course:
   - Make it relevant to the course: indicate the purpose for the team project. Why is it important that this project is done with teams?
   - Make it real:
     - Indicate how team work is important/authentic in the work of the course discipline.
     - Provide some context from your experience in the discipline on the value of working in teams.
     - Provide some evidence about the value of collaboration skills
   - Show your enthusiasm: Indicate your support for the team project. Indicate how the project is structured and support that you will provide to make the team project a success. Discuss the role of conflict on teams and how diverse teams lead to more innovative products.
   - Make expectations clear: Indicate what aspects of the project will be team authored/produced and those that are expected to be individual contributions. Discuss academic integrity in context of the structure of the project. Indicate how professionals in your field work as teams and share authorship.
   - Highlight student options to control the team work: Research indicates that students are more motivated when they have some control over their work. Indicate where in the team project students have options to move the project forward and make choices on the outcome. Indicate how/if the progression of the work is linked to due dates.
   - Examples:
     - ASTR220 introduces the value of active learning (including ability to work with others) on first day of class

2. Integrate team projects into my course schedule and content?
   See how this is done in the following examples as expressed in course syllabi:
   - ASTR220
   - GEMSTONE: GEMS102, GEMS202, GEMS296, GEMS297, GEMS396, GEMS397, GEMS496, GEMS497
   - Carillon Community Seminar (UNIV100) Syllabus
   See how this is done in course content:
   - Team Work in Carillon Community Project

3. Help students form teams?
   Leaving teams to form themselves can be problematic for many reasons, not the least of which is that students often choose friends and/or members who are similar to them in terms of demographic characteristics, perspectives, attitudes, skill levels, and prior knowledge. This can lead to teams with lopsided skill levels or teams that fail to perform optimally because they fail to bring unique or divergent perspectives to the issues under consideration. It can also make those who are not sought after for membership on teams feel uncomfortable or unwelcome in class, reducing their engagement in

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Because the diversity of team members has a profound effect on their perspectives, attitudes, skills, contributions and learning, it helps to have some rationale or criteria for forming teams. For example: Use a random process (e.g., see random number generator at random.org) to ensure that teams that have no particular advantages or disadvantages in prior knowledge, demographics, perspectives or skills. Random team assignments can create problems, however, if members have schedule and/or geographic location conflicts that make it difficult for them to meet regularly outside of class. Likewise, it can be uncomfortable for students who are in the minority on some attribute if they are split up into different teams (e.g., 1-2 women or underrepresented minorities). Purposeful team assignment can be helpful when team work is added to a course for a specific purpose (e.g. diverse teams are recommended to encourage students to appreciate and express diverse points of view, or for the development of a unique product), and to manage specific challenges with team work (e.g. grouping similar students together is recommended to address student schedule and geographic limitations, and in recognition that it can be uncomfortable for students who represent a demographic that is a minority in the class to be isolated in distinct teams).

a. Use a survey to get to know students and use this information to place students into teams?
   - Team Formation Survey Carillon Communities
   - Team Formation Survey_ASTR220
   - Crossing the Line & Speed Dating (CTL&SD)
     - Instructor Guide
     - CTL&SD Student Profile
     - CTL&SD Slide Deck

b. Help students get to know each other at the launch of their team projects?
   - Team Building Gemstone
   - ‘Ice Breaker’ Gemstone
   - ‘Get to know each other’ Gemstone
   - Strengths Identifier_Carillon

c. Help students set expectations and/or plan their projects?
   - Team Contract ANSC275
   - Team Contract ARCH270
     - Team Contract ARCH270 Instruction
   - Team Contract ASTR220
   - Team Contract EDSP220
   - Team Contract Carillon Communities
   - Team Project Planning Carillon Communities

d. Structure team and member reflections on learning?
   - Debrief Guide from AIE
   - I Like I Wish
     - Instructor Guide
     - Powerpoint Slides
     - Team Reflection
   - Team Timeline
     - Instructor Guide
     - Powerpoint Slides
     - Student Discussion Guide

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4. **Help student teams with team process issues?**
   - Quick Team Assessment Carillon Communities
   - Keep Quit Start ASTR220

   **a. Help students resolve conflicts on their teams?**
   - Giving and receiving feedback:
     - How to give your team feedback *(Harvard Business Review, 2014)*
     - WikiBooks suggestions for feedback in teams
     - Nine rules for giving effective feedback to your team members *(Daily Nation)*
   - Conflict management:
     - Resolving team conflict *(MindTools)*
     - Resolving Conflicts on the Team *(for Dummies)*
     - 6 ways to effectively deal with team conflict *(Dale Carnegie Training)*

5. **Provide guidance and resources for successful team work to my students?**
   - Steps to Success Carillon Communities
   - Team contracts
     - Carnegie Mellon University
     - University of Arizona
     - Georgia Institute of Technology
     - University of Utah

6. **Hold team members accountable and/or assess my students on their team projects?**
   - Peer Evaluation ASTR220
   - Peer Evaluation Carillon
   - Team Assessment ARCH270
   - Team Assessment Gemstone
   - Peer Evaluation Gemstone
   - Group Feedback EDSP220
   - Peer Evaluation EDSP220

Additional resources available online:
- Team charters are similar to team contracts, though they often include more details than team contracts do and are used by businesses.
  - Life Cycle Engineering
  - How to create a team charter for success
  - University of Missouri document on how to develop a team charter

References on Team work and collaboration


The article presents a practical methodology for creating closeness in an experimental context. The results indicate that the importance of “task type” in developing closeness. The contents of the tasks – whether they required self-disclosure and other intimacy-associated behaviors - made a considerable difference.

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; It is a detailed handbook for faculty to implement collaborative learning in class. First, it walks you through the stages of collaborative learning, from orienting students, forming groups, structuring the learning task, facilitating student collaboration to grading and evaluating. Last section of the book lists the techniques of collaborative learning such as techniques for discussion, reciprocal teaching, problem solving, using graphic information organizers, and focusing on writing.


; The article begins by defining group affect and examining four major types of collective affective constructs: (a) convergence in group affect; (b) affective diversity, that is, divergence in group affect; (c) emotional culture; and (d) group affect as a dynamic process that changes over time. We describe the nomological network of group affect, examining both its group-level antecedents and group-level consequences. Antecedents include group leadership, group member attributes, and interactions between and relationships among group members.

Consequences of group affect include attitudes about the group and group-level cooperation and conflict, creativity, decision making, and performance.


; The article examines the following three issues: (a) gender and ethnic differences in terms of preferences towards collaborative learning, (b) effects of collaborative learning on student outcomes, and (c) determinants of openness to diversity. Results showed that exposure to collaborative learning practices influenced positively each of the outcomes under study.

*CATME (Comprehensive Assessment of Team Member Effectiveness) tools can be found at [http://info.catme.org/](http://info.catme.org/) and the login to use the site is at [https://www.catme.org/](https://www.catme.org/)


; This chapter discusses the merits of peer assessment and evaluation; the instructional guidelines, issues, and considerations for their use in the TBL classroom, and a brief description of peer assessment methods and information on how to access forms.


; Collaborative groups are a core element of the PBL strategy, and research has indicated that collaborative groups have been associated with higher levels of student achievement and critical reasoning than didactic approaches. Consequently, they provide an important context for understanding students’ perspectives of their learning. The findings of this study indicate that students have a feeling of ownership of knowledge when they acquire it through a collaborative learning approach.


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The article presents suggestions that are designed to help instructors set up formal learning groups and study teams. First it starts off by listing the overarching strategies that need to be taken into consideration such as “planning each stage of group work,” “explaining the objectives, guidance, evaluation of the group work,” and “keeping a written contract.” Then, the article follows through and details the common stages of collaborative learning from designing to evaluating group work.


The study focuses on the role a student prefers to assume during peer discussions, and how this preferred role may vary given a student’s social identities. The results indicate that self-reported preferred roles in peer discussions can be predicted by student gender, race/ethnicity, and nationality. In addition, the study explores and confirms three hypothesized barriers explaining participation difference in the classroom. These barriers are 1) students are excluded from the discussion by actions of their groupmates; 2) students are anxious about participating in peer discussion; and 3) students do not see value in peer discussions.

Disagreeable Teens Fail To Understand Their Blind Spots, Research Reveals - npr

Disagreeable teens tend to grow up into disagreeable adults. A 10-year study finds that disagreeable teens often have no awareness that their behavior is harming their relationships.


In numerous studies, diversity — both inherent (e.g., race, gender) and acquired (experience, cultural background) — is associated with business success. Working in homogenous teams feels it is easier and more fluid — but easy is not helpful in terms of performance. Working on diverse teams on the other hand produces better outcomes precisely because it’s harder. Confronting opinions you disagree with might not seem like the quickest path to getting things done, but working in groups can be like studying (or exercising): no pain, no gain. However, it is critical to note that simply making a team more diverse is not necessarily enough to see the benefits. Diverse teams must find ways to work together productively, and often the best ways of working may seem counterintuitive.


This study examines the influence of various educational interventions in higher education on students’ racial bias. The author reviews studies in four principle domains: multicultural courses, diversity workshops and training, peer-based interventions, and service-based interventions. He pays particular attention to the varied approaches, measures, and research designs used to assess the effectiveness of interventions. He concludes with specific recommendations for improving the quality of intervention studies, suggests a conceptual model for explaining student change, and points out gaps in the extant knowledge base.


This sourcebook contains nine papers on various aspects of collaborative learning for students with emphasis on college level instruction (though some material relevant to secondary elementary education is also included). Contributors address what collaborative learning is, how it is implemented, how to assess it, and where it is used.

In Assigning Group Work to Students, Designing the Group Comes First – The Chronicle of Higher Education

Research shows that if groups and assignments are structured hastily, they can be counterproductive. For instance, students in underrepresented groups, like women in engineering, might experience marginalization when working in teams. And there’s the “lone-wolf phenomenon,” in which one student goes off and does the group’s assignment alone, while the other students learn little.

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This monograph explores the current use in higher education of cooperative learning. The opening section sets out to define cooperative learning, and to look at the history of the technique, its basic elements, types of cooperative learning groups, and implications for faculty functioning and the educational institution overall. The next section discusses the five basic elements of cooperative learning: (1) positive interdependence; (2) face-to-face promotive interaction; (3) individual accountability and personal responsibility; (4) frequent use of interpersonal and small group social skills; and (5) frequent, regular group processing of current functioning. The following section reviews the research validating the effectiveness of cooperative learning in college classrooms including research on social interdependence, patterns of interaction, and learning outcomes. The next three sections focus on the instructor’s role in using formal cooperative learning groups, informal cooperative learning groups, and cooperative base group. The next section examines cooperation among faculty. A concluding section describes two typical cooperative learning class sessions and speculates on the impact this method will have in the future.


In this article, I describe a classroom exercise used to assist White undergraduates in recognizing their racial privilege and the effects of institutional racism. While working in collaborative groups to construct mobiles, students unknowingly assume roles and behaviors analogous to those held by members of dominant and nondominant racial and social-class groups in the larger society. Students’ written reflections at the conclusion of the class session provide evidence of the activity’s effectiveness in helping students gain new insights about the privileged positions they hold in society and the ways those positions influence their perceptions of others.


This article reveals results from survey of over 1300 biology students at UMD. Students rated “working in groups” as one of the least valuable skills learned in undergraduate education. This contrasts with the high value placed upon team skills by employers.


This paper examines the role of demographic diversity (gender and nationality) on collaborative creativity. A self-report questionnaire is used to evaluate students’ life experiences in terms of diverse mindsets (diversity in interests, likes, and attitudes) and intergroup contact (interaction with dissimilar others), and a research report analysis reveals groups’ collaborative creativity. The results show that diverse mindsets moderate the effect of gender diversity on collaborative creativity in such a way that groups whose members are more broadly oriented in terms of interests, likes, and attitudes benefit more from this form of demographic diversity as compared with groups whose members are less broadly oriented. No support is found for the moderating role of intergroup contact for the effect of demographic diversity on collaborative creativity. The results presented in this paper suggest that diversity of life experiences is a moderator worthwhile considering in the group diversity–group creativity relationship and provide insights into the necessary conditions for collaborative creativity.

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Stop brainstorming and start sprinting. (https://www.linkedin.com/pulse/stop-brainstorming-start-sprintin-jake-knapp) – LinkedIn

The article presents four major problems with group brainstorms and addresses them with parallel “Sprint” process.

1. Brainstorm problem: Shallow ideas from the group - Sprint solution: Detailed ideas from individuals
2. Brainstorm problem: Personality outshines content - Sprint solution: Ideas stand on their own
3. Brainstorm problem: Groupthink - Sprint solution: Opinionated decisions
4. Brainstorm problem: No results - Sprint solution: A prototype and data, everytime


Three studies tested a stereotype inoculation model, which proposed that contact with same-sex experts (advanced peers, professionals, professors) in academic environments involving science, technology, engineering, and mathematics (STEM) enhances women’s self-concept in STEM, attitudes toward STEM, and motivation to pursue STEM careers. Two cross-sectional controlled experiments and 1 longitudinal naturalistic study in a calculus class revealed that exposure to female STEM experts promoted positive implicit attitudes and stronger implicit identification with STEM (Studies 1–3), greater self-efficacy in STEM (Study 3), and more effort on STEM tests (Study 1). Studies 2 and 3 suggested that the benefit of seeing same-sex experts is driven by greater subjective identification and connectedness with these individuals, which in turn predicts enhanced self-efficacy, domain identification, and commitment to pursue STEM careers. Importantly, women’s own self-concept benefited from contact with female experts even though negative stereotypes about their gender and STEM remained active.


The article believes that putting students into groups to learn is not the same thing as structuring cooperation among students. In order to construct positive, effective cooperative group learning situations, the article proposes five essential elements that are necessary: Positive Interdependence, Face-to-Face Promotive Interaction, Individual and Group Accountability, Interpersonal and Small-Group Skills, and Group Processing.


The authors conducted a meta-analytic examination of whether learning outcomes are moderated by aspects of group process and collaborative learning. Results indicated that (a) group duration of a brief period (one to three classes) was more effective than group duration lasting more than one-half semester, (b) high levels of participant interdependence were associated with greater learning outcomes, and (c) group activities incorporating a formal group project presentation evidenced significantly less robust learning outcomes than activities that did not include a formal group presentation. Based on the findings, the authors provide teaching suggestions that reflect how group processes may impact learning effectiveness.

What Google Learned From Its Quest to Build the Perfect Team - The New York Times (https://www.nytimes.com/2016/02/28/magazine/what-google-learned-from-its-quest-to-build-the-perfect-team.html?_r=0)

In 2012, Google embarked on an initiative — code-named Project Aristotle — to study hundreds of Google’s teams and figure out why some stumbled while others soared. As the researchers studied the groups, they noticed two behaviors that all the good teams generally shared. First, on the good teams, members spoke in roughly the same proportion, a phenomenon the researchers referred to as “equality in distribution of conversational turn-taking.” On some teams, everyone spoke during each task; on others, leadership shifted among teammates from assignment to assignment. But in each case, by the end of the day, everyone had spoken roughly the same amount. Second, the good teams all had high “average social sensitivity” — a fancy way of saying they were skilled at intuiting how others felt based on their tone of voice, their expressions and other nonverbal cues.


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A series of collaborative and experiential activities was designed to provide learning opportunities for students enrolled in an interdisciplinary human diversity course. Students were required to participate in a group project and were given class time to work with the group designing the presentations. Students were also asked to participate in ongoing research on multicultural experience. Pretest and posttest measures of the impact of this method of instruction on attitudinal and behavior change related to a student’s openness to exploring diversity activities were administered as a measure of the effectiveness of this type of instruction. Data were for 66 students from 1993, when the course was an elective and for 75 students in 1997, when the course was a requirement. A hypothesis based on the Social Construct Hypothesis stated that positive contact with others who are different would reduce prejudice. The 1993 sample experienced significant change in the direction of increasing multicultural experience participation.


The article presents a quarter-long cell biology class based on team projects. To support effective teamwork and to help students develop collaboration skills useful for their future careers, the course instructors provided training in working in small groups. Although student satisfaction with the course is similar to that of standard lecture-based classes, a project-based class offers unique benefits to both the student and the instructor.