

Facilitating Group Work Overview Technology Enhanced Collaborative Group Work – Adaptation Award

“Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's own ideas and responding to others' reactions sharpens thinking and deepens understanding.”

Chickering, A, Gamson, Z. (1987) Seven Principles for Good Practice in Undergraduate Education. *American Association for Higher Education Bulletin*.

Selecting the Challenge

- “Carefully structured cooperative learning involves people working in teams to accomplish a common goal, under conditions that involve both *positive interdependence* (all members must cooperate to complete the task) and *individual and group accountability* (each member individually as well as all members collectively accountable for the work of the group).”

Smith, K, Sheppard, S, Johnson, D & Johnson, R (2005) Pedagogies of Engagement: Classroom – Based Practices. *Journal of Engineering Education*.

- “‘Authentic’ activities include four different dimensions:
 1. personal (students care about it),
 2. disciplinary (aligned with the intellectual tools and practices of the domain),
 3. real world (connected to the world outside the classroom), and
 4. assessment (assessment aligned with learning activities).”

Schaffer, D. W. & Resnick, M. (1999). “Thick” authenticity: New media and authentic learning. *Journal of Interactive Learning Research* 10(2), 195-215.

- “Group tasks will determine how students interact together, with well-structured tasks requiring little interaction while ill-structured tasks, or ones that are open and discovery-based, require students to interact if they are to resolve the problem at hand.”

Gilles, R., (2007). *Cooperative Learning: Integrating Theory and Practice*. Sage Publications; Los Angeles, CA.

Group Formation

- “Teams should be as heterogeneous as possible to provide the best mix of abilities, sexes, and ethnic groups. This enhances elaborate thinking, frequent giving and receiving of explanations and perspective taking in discussing material.”

Mourtos, N. (1994). The Nuts and Bolts of Cooperative Learning in Engineering. *Frontiers in Education Conference*.

- “If you just want to teach your course effectively....we recommend making ability heterogeneity your primary criterion [for group formation]...try to avoid groups where minorities are isolated.”

Felder, R, Brent, R. (2001). Effective Strategies for Cooperative Learning. *Journal of Cooperation and Collaboration in College Teaching*. 10(2), 69-75.

- “There is no consensus in the literature on the optimal team size, but most authors agree that the minimum is three and the maximum is five.”
Oakley, B., Felder, R., Brent, R., Elhadj, I. (2004). Turning Student Groups into Effective Teams. *Journal of Student-Centered Learning*. 2(1). 9-34.

Teach Collaboration Skills

- “Interpersonal and small-group skills make possible the basic nexus among students; and if students are to work together productively and cope with the stresses of doing so, they must have at least a modicum of these skills.”
Johnson, D & Johnson, R. (1990). Social Skills for Effective Group Work. *Educational Leadership*. December 1989/January 1990. 29-33.
- “People do not know instinctively how to interact with the others...Students must be taught these skills and be motivated to use them.”
Johnson, D & Johnson, R. (1990). Social Skills for Effective Group Work. *Educational Leadership*. December 1989/January 1990. 29-33.
- “Guidance from the instructor on effective teamwork had a significant effect on promoting student satisfaction with their team experience”
Oakley, Hanna, Zuzmyn and Felder (2007) Best Practices Involving Teamwork in the Classroom: Results From a Survey of 6435 Engineering Student Respondents *IEEE Transactions on Education*, 50(3)

Communicate Expectations

- “In general, we find that we can minimize resistance by telling the students right from the start why we are using groups, stressing in our explanation the benefits cooperative learning can give them and offering to direct them to the research that proves it.”
Felder, R, Brent, R. (2001). Effective Strategies for Cooperative Learning. *Journal of Cooperation and Collaboration in College Teaching*. 10(2), 69-75.
- In formal cooperative learning groups teachers should clearly define the assignment, teach the required concepts and strategies, specify the positive interdependence and individual accountability, give the criteria for success, and explain the social skills to be used.
Johnson, D, & Johnson, R. (1999). Making Cooperative Learning Work. *Theory Into Practice*. 38(2). 67-73
- “Two important first steps in turning groups into effective teams are to set out a clear set of guidelines for team functioning and to have the members formulate a common set of expectations for on another.”
Oakley, B., Felder, R., Brent, R., Elhadj, I. (2004). Turning Student Groups into Effective Teams. *Journal of Student-Centered Learning*. 2(1). 9-34.

Group Processing

- “Professors need to ensure that members of each cooperative learning group discuss how well they are achieving their goals and maintaining effective working relationships...Such processing enables learning groups to focus on group maintenance, facilitates the learning of collaborative skills, ensures that members receive feedback on participation, and reminds students to practice collaborative skills consistently.”
Smith, K, Sheppard, S, Johnson, D & Johnson, R. (2005). Pedagogies of Engagement: Classroom – Based Practices. *Journal of Engineering Education*.

- “The results indicate that the high-, medium-, and low-achieving students in the cooperation with group processing condition achieved higher on daily achievement, post-instructional achievement, and retention measures than did the students in the other two conditions.”
Johnson et al. *Cooperative Learning And Social Interdependence Theory*. (1998) pp. 35
- “In a study that investigated the impact of group processing on the achievement of 48 high-ability high school seniors and beginning college students who worked in one of four conditions (cooperative learning with no processing, cooperative learning with teacher-led processing, cooperative learning with teacher- and student-led processing, and individual learning...students had greater problem-solving success and higher achievement gains when they participated in either teacher-led or student-led group processing discussions than students who worked cooperatively with no processing or individually...”
Johnson, D., Johnson, R., Stanne, M., & Garibaldi, A. (1990) The Impact of Leader and Member Group Processing on Student Achievement in Cooperative Groups. *Journal of Social Psychology*, 130, 507-516.

Assessment/Grading

- “The decision about how and whether to assess aspects of group work should be based on the purpose of the activity and the significance it plays in assisting students to achieve key objectives.”
Victoria University of Wellington. (2004). *Improving Teaching and Learning Group Work and Group Assessment (UTDC Guidelines)*. Wellington, Australia.
- “Assessment has a key role in teaching and learning because students define the curriculum or module according to the assessment. The assessment also sends explicit and implicit messages to students about what is considered important in the module.”
Keppell, M., Au, E., Ma, A., & Chan, C. (2006). Peer Learning and Learning-Oriented Assessment in Technology Enhanced Environments. *Assessment and Evaluation in Higher Education*. 31(4), 453-464.
- “The ability to omit the names of uncooperative team members from assignments and to fire them as a last resort had the strongest association with student satisfaction of all the factors directly under the instructor’s control.”
Oakley, Hanna, Zuzmyn and Felder (2007) Best Practices Involving Teamwork in the Classroom: Results From a Survey of 6435 Engineering Student Respondents *IEEE Transactions on Education*, 50(3)
- “Use a peer rating system to assess the performance of individual team members and to adjust team grades to take the ratings into account. Be explicit about the criteria to be used in assigning ratings, and choose criteria that reflect responsibility and cooperativeness rather than academic ability.”
Oakley, B., Felder, R., Brent, R., Elhajj, I. (2004). Turning Student Groups into Effective Teams. *Journal of Student-Centered Learning*. 2(1). 9-34.