

Cooperative/Collaborative Structures Explicitly Designed To Promote Positive Interdependence Among Group Members

Positive interdependence is the quintessential quality that defines collaboration and transforms group work into teamwork. It is a key feature that has been emphasized by scholars concerned primarily with promoting students' academic achievement and cognitive development (Slavin, 1983; Johnson & Johnson, 1987), as well as scholars concerned with students' holistic development, such as Chickering (1969)-who argues that, in its highest form, the development of autonomy does not simply involve the development of freedom to choose freely and act independent of outside influences, but also involves the development of freedom that recognizes one's dependence and obligations to others. The following are some single-step strategies that may be used to promote positive interdependence among students working in groups.

Before launching groups into collaborative learning tasks, have them engage in team-building activities that are designed to foster social cohesiveness. Such activities include (a) having groups participate in icebreaker (warm-up) activities when they are first formed (e.g., name-learning, personal information-sharing); (b) having groups engage in practices that promote team identity (e.g., team photo, team name, team symbol, team mascot, team cheer, team handshake), and (c) providing groups with explicit, concrete examples of how to promote interdependence and teamwork (e.g., exchanging phone numbers, e-mail addresses, and out-of-class schedules; forming teams for note-taking, reading, studying, and exam review; brainstorming specific characteristics of effective teams; setting explicit ground rules regarding attendance at and preparation for team meetings, and identifying specific strategies for dealing with team members who do not follow established ground rules). The educational objective of these team-building activities is to create a social-emotional climate conducive to the development of an esprit de corps, or a sense of solidarity and intimacy among group members, enabling them to feel comfortable in future group activities that may require them to express personal viewpoints, disagree with others, and reach consensus in an open (non-defensive) fashion.

- Have teammates **rely on each other before relying on the instructor**. (For 4-member teams, the phrase "3 before me" can serve as a rhythmical reminder of this expectation.)
- Redirect instructor-directed questions posed by individual students back to the students' team.
- Have teams seek help from other teams before seeking help from the instructor.
- Have the last team who received help, provide help to the next team who seeks help.
- Have group members consistently use team responses (e.g., all teammates raise their hands before the instructor responds; teammates provide a choral response to instructor-posed questions; all teammates sign their names on completed group tasks).
- Have students consistently use team language in the classroom ("we" and "our" vs. "I" "me" or "mine").
- **Have group work culminate with the completion of a single, jointly constructed product.** Expect students to routinely generate a tangible product that represents a concrete manifestation of the group's collective work (e.g., completion of a worksheet, a list or chart of specific ideas, or an overhead transparency that can be displayed to other groups). The objective of working toward a common, clearly defined outcome should serve to keep the team "on task" and working toward the group goal-the creation of a unified product that reflects the team's concerted effort.
- Assign complementary, interdependent roles to different group members A sense of group interdependence may be increased if each member has a specific and indispensable role to play in achieving the group's final goal. For instance, individuals within the group could

be assigned the following types of complementary roles: (1) Function roles whereby each member is responsible to perform a particular functional duty for the group (e.g., recorder, spokesperson, social-process monitor, accuracy coach-who troubleshoots errors, or research runner-who accesses and retrieves information for the learning group). (2) Resource roles whereby each member is responsible for providing one key piece of information to be incorporated into the group's final product (e.g., information from one chapter of the text or one unit of classroom instruction). (3) Cognitive roles, such as contributing one component or dimension of higher-level thinking to the group's final product (e.g., application, synthesis, or evaluation). (4) Perspective roles whereby each member contributes one important perspective or viewpoint (e.g., ethical, social, or economic perspective). *Note: An additional advantage of role specialization is that the quality of each member's contribution to the final product can be readily identified and assessed by the instructor, thus individual accountability is ensured.*

- Provide incentives for group interdependence by adopting testing and grading practices that reward individuals for contributing to the academic success of their teammates. For example, interdependence and mutual support can be encouraged among group members who are preparing for exams by awarding extra (bonus) points that count toward individual students' course grade if (a) any individual member improves his score from one exam to the next, or (b) if each teammate's performance exceeds a certain criterion (e.g., each member achieves a score of at least 90%). Interdependence can also be encouraged during exam review by having group members take a team exam after they have completed their individual exam, and (a) awarding extra (bonus) points to each student if their team score is higher than the score of any individual member, or (b) having students' total test score equal the sum of their individual score and their team score. Listed below are formal structures designed to promote positive interdependence among group members.

1. TEAM-BUILDING (ICEBREAKER) STRUCTURES

Team Portrait: Teammates answer individually a few instructor-posed questions about themselves (e.g., academic major, career interests, personal interests). Then teammates convene and integrate their personal information into a composite team portrait or profile that may be depicted in narrative or visual-spatial form-e.g., an emblem, mascot, or coat of arms. (Ellis, 1996)

Team Vision Statement: A variation of the above structure, in which teammates write individual statements about what they hope their team experience will be like, then unite to integrate these individual vision statements into one team-vision statement. (Silberman, 1998)

Classmate Scavenger Hunt: A class-building, icebreaker structure designed to build a sense of community and cohesive class spirit among all students early in the term-which, in turn, can serve as a foundation for facilitating subsequent small-group work. Students first provide individual answers to a series of instructor-posed questions that request personal information (e.g., place of birth? favorite book or movie? previous jobs held or volunteer work? personal heroes or individuals whom they admire?). The instructor reviews students' answers to these questions, selecting one distinctive or interesting statement written by each student, and compiles a list of personal statements for all students in class. At the beginning of the next class session, all students receive a copy of this list and circulate throughout the room, trying to find the classmate who matches each of the personal statements on the list. When a match is found, the identified student signs her name by her personal statement on the discovering student's list-which serves to verify the identification and ensures individual accountability. This process continues until every student in class has located (met) every other student, and the

process concludes when each student in class submits the same finished product to the instructor—a completed list that contains the signatures of all her classmates next to their corresponding personal statements. This structure can be adapted to promote instructor-student rapport, if the instructor also includes a personal statement on the list and takes part in the scavenger hunt along with the students. (Cuseo, 2000)

Card Sort: This structure serves a class-building function because students circulate around the room and interact with other students in class. First, each student is given an index card that contains an illustration or example that fits within a general category (e.g., category of living things, food types, or media modalities). Students then move around the room and try to find other students whose cards contain examples relating to the same category as their own. When students think they have found all other classmates carrying cards with examples from the same category, they present themselves to the class as a team. (If the categories are relevant to the course's content, then this structure may also double as a learning exercise, in which case the instructor assesses the accuracy of students' classifications and provides explanations or additional information if needed. (Silberman, 1997)

2. LISTENING STRUCTURES

Paraphrase Passport: A structure that requires each team member to correctly paraphrase or restate the idea of the teammate who previously spoke—before being allowed to contribute his own idea. (Kagan, 1992) *Note: This structure explicitly encourages interdependence by encouraging the individual to actively listen to and process the ideas of his teammates. It can also be slightly modified to create a different structure called "Affirmation Passport," whereby team members are expected to affirm something about the comment of the previous student (e.g., its clarity, creativity, or most powerful point) before contributing their own idea.*

Response Gambits: A modification of the above structure in which the instructor requires the team member to provide a response to her teammate's contribution before being allowed to share her own idea. The instructor may go one step further and designate specific responses for students to use, via sentence starters, such as: "One thing I learned from your contribution was..." or, "Tell me more about" (Kagan & Kagan, 1997)

3. RESOURCE-SHARING & INFORMATION-INTEGRATION STRUCTURES

Jigsaw: Teams are assigned a general topic and each teammate assumes responsibility for becoming an "expert" on one subtopic or piece of this general topic. Then members leave their teams to join members of other teams who are also "experts" on the same subtopic. After meeting in different expert groups, students return to their home team and teach their individual area of expertise to their teammates. The final outcome of this process is the piecing together of separate subtopics (like a "jigsaw" puzzle), resulting in a more complete or comprehensive understanding of the whole topic. (Aronson, et al., 1978)

Jigsaw II: A slight modification of Jigsaw in which the final step in the process is for team members to take an individual quiz or test on the material they have taught each other. (Slavin, 1980)

Double Expert Group Jigsaw: Another variation of the original Jigsaw in which expert groups with the same subtopic split in half, creating "double expert" groups. This structure enables experts to meet in a smaller group setting, and adds an "Experts Consult" option whereby members of the two expert groups can consult with each other before returning to their teams to complete the jigsaw. (Kagan, 1992)

Cooperative Graffiti: Each team is given one large, butcher-block sized piece of paper on which teammates individually record as many ideas as possible-using different colored pens. After completing this individual brainstorming session, teammates work together and attempt to organize their multi-colored collage of ideas into meaningful categories. (Abrami, 1995)

4. STUDYING & TEST-TAKING STRUCTURES

Learning Tournaments: Student teams review and study course material provided by the instructor. Teammates then take an individual test on that material that is comprised of easy-to-score test questions (e.g., true-false, multiple-choice, or fill-in-the blank questions). Students' individual test scores are tallied, and then the test scores of all individuals on the same team are pooled to obtain a single "team score." These team scores are announced and a winner is declared. This procedure can end here, or be continued in successive "rounds" comprised of additional material to be studied and additional sets of tests questions. (Silbereman, 1997)

Cooperative Study Groups: Students form 4-6 member study groups and register their group with the instructor by providing their names and student identification numbers. (Groups may expel or add a new member by unanimous vote; if group membership falls below four, the group is automatically disbanded-unless members vote in a replacement). Students who are members of registered study groups receive bonus points for each course assignment, provided that their group has registered prior to the assignment's due date. The bonus is based on an average of all individual grades received by group members-according to the following formula: If the average grade is A, all members receive three percentage points; if the average grade is B, they receive two percentage points; and if the average grade is C, they receive one percentage point. (If an individual student receives an A on the assignment, but the group average is C, that student still receives a bonus of one percentage point.) (Robinson, cited in Weimer, 1991)

Team Learning: This structure involves the following four phases: (a) Prior to class, students complete a reading assignment (e.g., a textbook chapter). (b) Individually, students take a closed-book quiz on the assigned reading. (c) Students take the same quiz as a team-attempting to reach consensus with respect to the correct answers for all test questions-because only one exam will be submitted by the team for which all teammates receive the same "team score." (4) Each student's individual quiz score and team quiz score are counted equally toward the student's final course grade. (Michaelsen, 1992)

Group Exam: Students meet in small groups periodically throughout the semester. For midterm tests and the final exam, each student first submits a completed exam that is taken individually; then group members assemble and complete a single answer sheet for the same test questions. If the group score is higher than the individual score for any individual member, the group earns bonus points that are added to each member's test score. (The total number of bonus points awarded is determined by subtracting the highest individual score from the group score, with the maximum bonus being 10% of the total exam score.) (Keyworth, 1989) In a variation of this procedure, students keep a copy of their individual exams for reference during the team test. To ensure individual accountability, the instructor distributes a special-colored pen (e.g., purple) for students to use during the individual exams and these pens are collected before students assemble for the team exam, thus ensuring that students' individual test score and team score are clearly differentiated (Creed, in Millis & Cottell, 1998).

Test Review-&-Troubleshoot Teams: After taking exams individually, students are given a copy of the test questions and form teams whose charge is to locate the source of information from which each test question and correct answer was derived (e.g., instructor's lecture notes,

handouts distributed in class, or assigned readings). Teams return the exam to the instructor after they have listed next to each test question the information source from which they think the answer to that question was derived. Bonus points are awarded to individual team members based on the total number of correct sources identified by their team. (Cuseo, 2000)

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