

Effective Small Groups: Teaching Teamwork

“Like all instructional methods, the success of small-group techniques depends largely upon the care with which they are designed and used” (Olmstad, 1974)

“project” refers to the group task, which may be a one-time worksheet or a semester-long capstone.

Common instructor challenges that must be addressed for effective group work

- Ensuring the project design includes both individual and group accountability
- Non-competitive classroom climate (e.g. not grading on a curve) and ground rules regarding mutual respect and encouraging different ideas and opinions (rules can be student generated)
- Project and learning goals must be sufficiently challenging to require group work
- Student (or instructor) reluctance due to prior ineffective group experiences
- Being clear and explicit in instructor objectives and expectations regarding group work: reasons for it, including learning goals and challenges (e.g. task allocation)
- Group processing/reflection opportunities (p.22); provide group process tools (p.6)
- Equalizing group member learning, participation and contribution
- Ensure that students receive an assessment and feedback on teamwork skills so that they are learning and improving (think backwards design)

Teaching teamwork

Some strategies we’ve noted. Not all of these will work well across all situations. Those that additionally allow for instructor formative/summative assessment are in *italics*. Also see p. 11.

For each, consider: What is the level of social/emotional risk for student? Time required from instructor?

- Rotating assigned roles. Roles might include: Skeptic (challenger, “Devil’s advocate”), Contribution manager (facilitator), Task manager, Timekeeper, Notekeeper (p.9)
- *Peer grading* (including themselves)
- Peers complete *group effort analyses* using clear rubric (including themselves; p.20 and 21). Constructive/destructive behaviors exercise: Within the group, each student chooses and discusses one constructive and one destructive behavior that they find in themselves (p.8)
- Mid-project *reflection questions*, e.g. as minute papers. Ex: What have you learned from working in groups so far? What are you doing well? What are you still working on improving? (p.22)
- Mid-project instructor feedback, incorporating observations and group effort analyses. Might aggregate common findings and feedback to whole class (esp. if was done as electronic survey) or individually, discussing how to promote positive teamwork and handle challenges.
- Presentation- person-to-person across groups, *group-to-whole class* or group-to-group. For group to whole class or group to group, each member might take a component of the presentation. If the learning goals require that all members know the full project, randomly assigning components may improve peer instruction and dialog. For person-to-person, can take the form of answering a 2-minute question. Having each member articulate some aspect of their work to a member of another group aids learning and offers individual accountability without one-on-one instructor time.

Instructor assessment of effectiveness (Scholarly teaching =using evidence to teach)

Ensuring that course assessment design allows for evidence to answer: How well were learning goals met? What worked and what didn’t? What needs to be changed?

Provide group process tools (also see p.6)

- Make time line of project to assist in meeting scheduling & task allocation

- At the beginning of a meeting, decide what needs to be accomplished by the end
- Any ground rules beyond those established by the instructor?
- Have each person individually write ideas before group discussions, and go in a circle to ensure each person shares their idea(s). If brainstorming, may make sense to discuss them only after all have been heard.

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What is the Difference Between a Groups and Teams?

Adapted from: NDT Resource Center, <http://www.ndt-ed.org/TeachingResources/ClassroomTips/Teamwork.htm>

One of the first things that an instructor must recognize is the difference between an individual working as part of a group and an individual working as part of a team. Below is a list of the differences that exist between these categories. After reading through the list, it should be clear what the difference is and which one would be ideal in a classroom. Could be used as handout preparing the students for effective teamwork.

Groups	Teams
<ul style="list-style-type: none"> Members work independently and they often are not working towards the same goal. 	<ul style="list-style-type: none"> Members work interdependently and work towards both personal and team goals, and they understand these goals are accomplished best by mutual support.
<ul style="list-style-type: none"> Members focus mostly on themselves because they are not involved in the planning of their group's objectives and goals. 	<ul style="list-style-type: none"> Members feel a sense of ownership towards their role in the group because they committed themselves to goals they helped create.
<ul style="list-style-type: none"> Members are given their tasks or told what their duty/job is, and suggestions are rarely welcomed. 	<ul style="list-style-type: none"> Members collaborate together and use their talent and experience to contribute to the success of the team's objectives.
<ul style="list-style-type: none"> Members are very cautious about what they say and are afraid to ask questions. They may not fully understand what is taking place in their group. 	<ul style="list-style-type: none"> Members base their success on trust and encourage all members to express their opinions, varying views, and questions.
<ul style="list-style-type: none"> Members do not trust each other's motives because they do not fully understand the role each member plays in their group. 	<ul style="list-style-type: none"> Members make a conscious effort to be honest, respectful, and listen to every person's point of view.
<ul style="list-style-type: none"> Members may have a lot to contribute but are held back because of a closed relationship with each member. 	<ul style="list-style-type: none"> Members are encouraged to offer their skills and knowledge, and in turn each member is able to contribute to the group's success.
<ul style="list-style-type: none"> Members are bothered by differing opinions or disagreements because they consider it a threat. There is not group support to help resolve problems. 	<ul style="list-style-type: none"> Members see conflict as a part of human nature and they react to it by treating it as an opportunity to hear about new ideas and opinions. Everybody wants to resolve problems constructively.
<ul style="list-style-type: none"> Members may or may not participate in group decision-making, and conformity is valued more than positive results. 	<ul style="list-style-type: none"> Members participate equally in decision-making, but each member understands that the leader might need to make the final decision if the team can not come to a consensus agreement.

Stages of Team Growth

Source: NDT Resource Center, <http://www.ndt-ed.org/TeachingResources/ClassroomTips/Teamwork.htm>

It is important for teacher and students (the team members) to know that teams don't just form and immediately start working together to accomplish great things. There are actually stages of team growth and teams must be given time to work through the stages and become effective. Team growth can be separated into four stages.

Stage 1: Forming. When a team is forming, members cautiously explore the boundaries of acceptable group behavior. They search for their position within the group and test the leader's guidance. It is normal for little team progress to occur during this stage.

Stage 2: Storming. Storming is probably the most difficult stage for the group. Members often become impatient about the lack of progress, but are still inexperienced with working as a team. Members may argue about the actions they should take because they faced with ideas that are unfamiliar to them and put them outside their comfort zones. Much of their energy is focused on each other instead of achieving the goal.

Stage 3. Norming. During this stage team members accept the team and begin to reconcile differences. Emotional conflict is reduced as relationships become more cooperative. The team is able to concentrate more on their work and start to make significant progress.

Stage 4. Performing. By this stage the team members have discovered and accepted each other's strengths and weaknesses, and learned what their roles are. Members are open and trusting and many good ideas are produced because they are not afraid to offer ideas and suggestions. They are comfortable using decision making tools to evaluate the ideas, prioritize tasks and solve problems. Much is accomplished and team satisfaction and loyalty is high.

Since working as part of a team can improve learning and is a much needed skill in today's workplace, some team exercises should be included in the classroom. With well planned out tasks, careful guidance, and close observation, instructors can make team exercises extremely valuable learning experiences.

Characteristics of Effective Teams

The following are eight characteristics of effective teams that were identified by Larson and LaFasto in their book *Teamwork: What Must Go Right/What Can Go Wrong* (Sage Publications 1989).

1. **The team must have a clear goal.** Avoid fuzzy, motherhood statements. Team goals should call for a specific performance objective, expressed so concisely that everyone knows when the objective has been met. The elements of a goal include (a) what is to be achieved; (b) a measure of accomplishment – how we will know when the outcome has been reached; and, (c) the time factor – when we want to have the goal completed.
2. **The team must have a results-driven structure.** The team should be allowed to operate in a manner that produces results. It is often best to allow the team to develop the structure.
3. **The team must have competent team members.** In the education setting this can be taken to mean that the problem given to the team should be one that the members can tackle given their level of knowledge.
4. **The team must have unified commitment.** This doesn't mean that team members must agree on everything. It means that all individuals must be directing their efforts towards the goal. If an individual's efforts are going purely towards personal goals, then the team will confront this and resolve the problem.
5. **The team must have a collaborative climate.** It is a climate of trust produced by honest, open, consistent and respectful behavior. With this climate teams perform well...without it, they fail.
6. **The team must have high standards that are understood by all.** Team members must know what is expected of them individually and collectively. Vague statements such as "positive attitude" and "demonstrated effort" are not good enough.
7. **The team must receive external support and encouragement.** Encouragement and praise works just as well in motivating teams as it does with individuals.
8. **The team must have principled leadership.** Teams usually need someone to lead the effort. Team members must know that the team leader has the position because they have good leadership skills and are working for the good of the team. The team members will be less supportive if they feel that the team leader is putting him/herself above the team, achieving personal recognition or otherwise benefiting from the position.

Meeting Strategies to Help Prepare Students for Group Work

Source: *The Centre for Teaching Excellence, University of Waterloo*

Working in groups is quite different than working individually. One of the main reasons why students find it difficult is that they were not trained to perform effectively in a team setting. An instructor can help by teaching organizational, personal, and discussion skills that will help students manage group dynamics and have a positive teamwork experience. Meetings are key events during group work, and there are several techniques for running effective meetings. This sheet could be used as a handout, to prepare students for effective groupwork.

Planning and Running a Meeting

Steps that should be taken before a meeting happens:

- plan the meeting carefully: who, what, when, where, why, and how many
- prepare and send out an agenda, identifying issues to be discussed
- set up meeting room send out background information about members

Steps that should be taken during a meeting:

- start on time
- make introductions of group members
- clearly define roles
- review, revise, and order the agenda
- set clear time limits
- review action items from previous meeting
- focus on one issue at a time

Steps that should be taken at the end of and after a meeting:

- record final decisions or actions to be taken
- assign tasks to group members
- set deadlines for the tasks
- set the date and place of the next meeting and develop a preliminary agenda
- evaluate the meeting, get feedback from members
- close the meeting positively
- clean up the room
- prepare the group memo, distribute to members and others who need to know

Skills that students need to develop/use to promote effective group work:

<ul style="list-style-type: none">• active and tolerant listening	<ul style="list-style-type: none">• communication skills
<ul style="list-style-type: none">• flexibility	<ul style="list-style-type: none">• accountability

<ul style="list-style-type: none">• respect for others' contributions	<ul style="list-style-type: none">• helping others to master content
<ul style="list-style-type: none">• participation	<ul style="list-style-type: none">• giving and receiving constructive feedback
<ul style="list-style-type: none">• patience	<ul style="list-style-type: none">• managing disagreements
<ul style="list-style-type: none">• motivation	
<ul style="list-style-type: none">• keeping deadlines	

Activities and tools that can be used in a group meeting for:

Opening discussion

- list available resources
- state different perceptions of what the real problem
- brainstorm ideas - all ideas are encouraged and accepted
- legitimize - show an understanding of how others see the problem
- kickstart with an example
- propose some potential solutions
- ask each individual for a possible solution

Narrowing down the solutions

- evaluate solutions using some criteria
- make sure solutions address the issues
- rank ideas in order of priority
- categorize solutions
- separate solutions based on "pros/cons"
- look for redundant and overlapping ideas
- force field analysis (what ideas give support to solving the problem? which ones prevent reaching a solution?)

Closing the discussion

- majority voting
- consensus
- build up/eliminate (add or subtract from different options to arrive at a new option that everyone can support)
- combine ideas (avoid either/or decisions)

Source: *The Centre for Teaching Excellence*
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Constructive and Destructive Group Behaviors

One suggested exercise: Have each student in a group share with their group one constructive and one destructive behavior they have found in themselves. Can be used at group formation or mid-project as a reflection.

Adapted from Brunt (1993). Facilitation Skills for Quality Improvement. Quality Enhancement Strategies. Madison, WI

Constructive Group Behaviors

Cooperating: Is interested in the views and perspectives of the other group members and is willing to adapt for the good of the group.

Clarifying: Makes issues clear for the group by listening, summarizing and focusing discussions.

Inspiring: Enlivens the group, encourages participation and progress.

Harmonizing: Encourages group cohesion and collaboration. For example, uses humor as a relief after a particularly difficult discussion.

Risk Taking: Is willing to risk possible personal loss or embarrassment for the group or project success.

Process Checking: Questions the group on process issues such as agenda, time frames, discussion topics, decision methods, use of information, etc.

Destructive Group Behaviors

Dominating: Takes much of meeting time expressing self views and opinions. Tries to take control by use of power, time, etc.

Rushing: Encourages the group to move on before task is complete. Gets "tired" of listening to others and working as a group.

Withdrawing: Removes self from discussions or decision making. Refuses to participate.

Discounting: Disregards or minimizes group or individual ideas or suggestions. Severe discounting behavior includes insults, which are often in the form of jokes.

Digressing: Rambles, tells stories, and takes group away from primary purpose.

Blocking: Impedes group progress by obstructing all ideas and suggestions. "That will never work because..."

Group Roles: Maximizing Group Performance

Adapted from: The Centre for Teaching Excellence, University of Waterloo

Having a diversity of skills and ideas within a group often enriches the group process and can improve the final product. However, working with others different from ourselves can be a challenge. One way to structure group functioning and benefit from one another's strengths is to assign roles to each member of the group. These team roles can be assigned based on individuals' strengths or rotated periodically to increase each member's understanding of the roles and of themselves as team members. There are four fundamental roles to consider: facilitator, moderator/contribution manager, notetaker/time keeper, and devil's advocate/skeptic/challenger. For larger groups, some of these roles can be divided between two students.

Facilitator

- Clarifies the aims of the group and helps the group to set sub-goals at the beginning of each meeting. Sub-goals should serve as an agenda of issues that need to be addressed during the meeting.
- Makes sure that all group members understand the concepts and the group's conclusions.
- Starts the meetings, introduces each topic, and keeps the group on task and oriented towards its goals.
- Ensures that the group completes its tasks before deadlines.

Typical phrases:

"Thanks for your contribution, Bill. What do you think, Mary?"

"From what I'm hearing, it appears that the key issues are A, B, and C. Why don't we start by discussing A, if that is agreeable to everyone?"

"So, it appears that we are all agreed that ..."

Moderator/contribution manager

- Observes group functioning carefully and initiates regular discussions on group climate and process, especially if he or she senses tension or conflict brewing.
- During disagreements or conflicts, clarifies the arguments and proposes suggestions for resolving dispute.
- Ensures that all group members have a chance to participate and learn; may elicit comments from members if they are not participating.
- Acts as a cheerleader for the group whenever possible, praising members for work well done.

Note: For larger groups the role of "encourager" could be done by a different student.

Typical phrases:

"We haven't heard much during our meeting from you, John. Do you have any thoughts?" "It might be helpful if you backed off a bit, Kate, so we can hear what Doug has to say."

"I'm sensing a bit of tension among us over this decision; I think we should get our disagreements out into the open."

"I think we can feel really good about what we've accomplished to this point. Especially nice work on the project outline, Kim!"

Notetaker/Time Keeper

- Takes notes during meetings to keep a record of what has been decided, tasks that have been assigned, when meetings are scheduled, etc.
- Summarizes discussions and decisions for the rest of the group. Distributes a summary of each meeting to all group members.
- Presents group material to the rest of the class/supervisor.
- Keeps track of time during meetings to avoid spending excessive time on one topic. This is best handled by deciding how much time will be allocated to each issue in the agenda, and letting everyone know when this time is up. It is also useful to point out when time is almost up so that issues can be wrapped up appropriately.

Note: For larger groups, the roles of notetaker and time keeper could be fulfilled by two students.

Typical phrases:

"Hold on, please, I just need to get this down before we move on."

"I'll send you an updated version of our report tomorrow, along with a summary of today's meeting."

"We've spent about 15 of the 20 minutes we allocated to this topic, so we've got about 5 more minutes to sort it out."

Devil's Advocate/Skeptic/Challenger

- Remains on guard against "groupthink" scenarios (i.e., when the pressure to reach the group goal is so great that the individual members surrender their own opinions to avoid conflict and view issues solely from the group's perspective).
- Ensures that all arguments have been heard, and looks for holes in the group's decision-making process, in case there is something overlooked.
- Keeps his or her mind open to problems, possibilities, and opposing ideas.
- Serves as a quality-control person who double-checks details to make sure errors have not been made and searches for aspects of the work that need more attention. Keeps an eye out for mistakes, especially those that may fall between the responsibilities of two group members.

Note: For larger groups, this role of devil's advocate could be divided into two roles: devil's advocate and quality control.

Typical phrases:

"Let's give Mike's idea a chance."

"OK, we've decided to go with plan C, but I noticed that we still haven't dealt with the same problem that plan A didn't address. What can we do to solve this?"

Methods for Assessing Group Work

Adapted from: Several references, see pg. 15

Introduction

Students should be made aware of assessment before starting the project

- assessment method
- criteria (product and/or process)

Product vs. Process

- assessing the product - measuring the quantity and quality of individual work in a group project
- assessing the process - evaluating individual teamwork skills and interaction

Assessment by instructor vs. by group members

- by instructor - instructor assigns all marks
- by group members - group members evaluate their contributions to the group and assign marks
- both of the above

Product assessment by instructor

Equally shared mark

- All group members receive same grade

Advantages	Disadvantages
<ul style="list-style-type: none"> • Easiest to implement - does not require any additional work aside from marking the projects • Appropriate if group work mark is a minor part of total mark for the course • Group responsibilities are enforced - group succeeds or fails together 	<ul style="list-style-type: none"> • Individual contributions are not reflected in the distribution of marks • Poor students may benefit from the work of hard-working students • Good students may be dragged down by poor students • Does not motivate students

Exam questions

- Questions should be *specifically* about the project, and are answerable only by students who have been thoroughly involved in the project

Advantages	Disadvantages
<ul style="list-style-type: none"> • May increase interest in the project - students may be more motivated to learn about the work of their fellow group 	<ul style="list-style-type: none"> • Students may ignore group in order to study for the exam on their own

members	<ul style="list-style-type: none"> • May mean additional work for instructor when preparing the exam questions • May not be effective - students may be able to answer the questions by simply proofreading the project
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Splitting tasks

- Project must be divisible into multiple tasks of the same complexity
- Each student is responsible for one task
- Final mark is part group mark (e.g., 50%) and part individual task mark (e.g., 50%)

Advantages	Disadvantages
<ul style="list-style-type: none"> • objective way of determining individual participation • individual component grade may provide additional motivation 	<ul style="list-style-type: none"> • May increase interest in the project - students may be more motivated to learn about the work of their fellow group members • Students may ignore group in order to study for the exam on their own • May mean additional work for instructor when preparing the exam questions • May not be effective - students may be able to answer the questions by simply proofreading the project

Direct evaluation

- Instructor judges individual merits
- oral interviews
- periodic reports
- meeting minutes
- observation

Advantages	Disadvantages
<ul style="list-style-type: none"> • oral interviews are a good way of getting information on individual participation • enables instructor to give each student more specific feedback 	<ul style="list-style-type: none"> • very time consuming • information obtained is often subjective and/or may be inaccurate • class size may make it infeasible

Product assessment by peer evaluation

Issues with peer evaluation:

- Should we use self-assessment?
- Should instructor adjust marks?
- Should it be done individually or collectively by consensus?

Distribution of a pool of marks (see p.16 for an example)

- Award the group a mark equal to $(group\ mark) \times (no.\ of\ group\ members)$
- Let group divide marks among themselves

Advantages	Disadvantages
<ul style="list-style-type: none"> • easy to implement • peer assessment may motivate students to contribute more to the group 	<ul style="list-style-type: none"> • open to subjective evaluations by students (e.g., giving friends high marks as opposed to those who contributed the most) • opens the doors to personal conflicts between group members • may foster competition • may be difficult for students to evaluate each other without objective criteria

Individual weighting factor (see p.16 for an example)

- Points awarded for a list of tasks
- Individual mark = $(group\ mark) \times (peer\ assessment\ factor)$

Advantages	Disadvantages
<ul style="list-style-type: none"> • provides students with objective criteria by which to judge individual contributions 	<ul style="list-style-type: none"> • time consuming for instructor • rating scale may be misinterpreted • tasks all have the same weight

Process assessment

List of skills to assess, such as:

- adoption of complementary team roles
- cooperative behaviour
- time and task management
- creative problem solving
- use of a range of working methods
- negotiation

Process assessment by instructor

Direct evaluation of team behaviour using teamwork logs - sample questions:

- what steps have you taken to organize your teamwork?
- what steps have you taken to monitor the effectiveness of your team?
- what steps have you taken to improve the effectiveness of your team?
- what problems have you encountered in working as a team and how did you tackle them?
- if you were to embark on a second, similar task as a team, what would be different about the way you go about working, and why?

Advantages	Disadvantages
<ul style="list-style-type: none"> • makes students reflect on their operation as a team • logs provide plenty of information that can be used as a basis for assessment 	<ul style="list-style-type: none"> • reviewing logs can be very time-consuming • students may need training in order to be aware of what goes on in the teams

Process self-assessment (see p.16 for an example)

Sample questions:

- what have you learned about yourself as a team-player?
- how can you apply this knowledge to future situations?
- how did collaborative learning contribute to your understanding of the course content?
- how did this experience challenge your assumptions and stereotypes?
- what would you do differently next time?
- what was the best/most challenging/worst experience you encountered?

Advantages	Disadvantages
<ul style="list-style-type: none"> • helps promote deep learning • may shed light on individual problems and concern 	<ul style="list-style-type: none"> • students hesitate to evaluate themselves negatively – especially if they expect to be penalized for it (non-scored, qualitative questions might be applied)

Process assessment by peer evaluation (see p.16 for an example)

- Individual assessment (see p. 16 for an example)
- how members view each member of the team
- use lists of key group work traits
- average of individual marks must be the same as the group mark

Advantages	Disadvantages
<ul style="list-style-type: none"> • gives a personalized view of each member's contributions • list of traits provides students with objective criteria 	<ul style="list-style-type: none"> • time consuming and complex; instructor must check results • list of traits may not give a true measure of the group work process • students may misinterpret traits • students may lack confidence in being

	critical
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Process assessment on a group level

- subset of peer evaluation, focusing on the group process
- how members see the group, their peers and themselves as group members
- provide structure

Advantages	Disadvantages
<ul style="list-style-type: none">• can help identify problems and conflicts early• helps students identify and capitalize on their group's strengths while minimizing disadvantages	<ul style="list-style-type: none">• students may try to involve the instructor in conflict resolution• students might use the activity to "bash" the group work process itself• students may choose to answer dishonestly, in hopes of obtaining a favorable grade

* peer and group evaluation in Examples

References

- Barkley, E.F., Cross, K.P. & Major, C.H. (2005).** Collaborative Learning Techniques: A handbook for college faculty. John Wiley & Sons.
- Gibbs, G. (1995)** *Learning in Teams: a Tutor Guide*. Oxford.
- Lejk, M. et al. (1996)** A Survey of Methods of Deriving Individual Grades from Group Assessments. In *Assessment & Evaluation in Higher Education*. Vol. 21, No. 3.

Examples of student self- peer- and group assessments

Source: The Centre for Teaching Excellence, University of Waterloo

Example for distribution of a pool of marks

- Group project mark: 70
- No. of group members: 4
- Instructor awards 280 points to group
- Advises students that difference between marks must not be greater than 20
- Group members divide marks by consensus as follows:

<i>Student</i>		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>Total</i>
<i>Mark</i>		80	60	75	65	= 280

Example for individual weighting factor

List of tasks	Group members' names		
	Ann	Bob	Chris
a) Literature search	3	4	1
(b) Analysing the literature	4	5	1
(c) Writing a report	1	2	4
(d) Group presentation	3	1	1
Individual Totals	11	12	7

Rating scale

- 1 -Did not contribute in this way
- 2 -Willing but not very successful
- 3 -Average
- 4 -Above Average
- 5 -Outstanding

Peer assessment factor = (individual total) / (average total)

Average of individual totals = 10

If project mark = 60

Individual marks:

$$\text{Ann} = 60 * (11/10) = 66$$

$$\text{Bob} = 60 * (12/10) = 72$$

$$\text{Chris} = 60 * (7/10) = 42$$

Example for Individual assessment

3 group members (Ann, Bob, Chris), no self-assessment

Student name: Ann

Evaluated by: Bob (marks selected are underlined and in boldface in this example)

Aspect of team functioning	well below average	below average	average	above average	well above average
1. Forming good team cohesion	-2	-1	0	<u>1</u>	2
2. Leadership, managing meetings	-2	-1	0	1	<u>2</u>
3. Planning and allocating tasks	-2	-1	<u>0</u>	1	2
4. Generating ideas and solutions	-2	<u>-1</u>	0	1	2
5. Tackling team social problems	-2	-1	0	<u>1</u>	2
6. Organising individuals to do jobs	-2	-1	<u>0</u>	1	2
7. Helping team members to finish jobs	-2	-1	<u>0</u>	1	2
8. Willingly taking on unpopular jobs	-2	-1	<u>0</u>	1	2

Instructor's mark for team project	60%
Sum of evaluation marks	+3
Individual mark for Ann given by Bob	63%
<i>Note: Bob's evaluation of Chris must add up to -3</i>	

Student name: Ann

Evaluated by: Chris

Aspect of team functioning	well below average	below average	average	above average	well above average
1. Forming good team cohesion	-2	-1	0	<u>1</u>	2
2. Leadership, managing meetings	-2	-1	0	<u>1</u>	2
3. Planning and allocating tasks	-2	-1	<u>0</u>	1	2
4. Generating ideas and solutions	-2	<u>-1</u>	0	1	2
5. Tackling team social problems	-2	-1	0	<u>1</u>	2
6. Organising individuals to do jobs	-2	-1	<u>0</u>	1	2
7. Helping team members to finish jobs	-2	-1	<u>0</u>	1	2
8. Willingly taking on unpopular jobs	-2	<u>-1</u>	0	1	2

Instructor's mark for team project	60%
Sum of evaluation marks	+1
Individual mark for Ann given by Bob	61%
<i>Note: Chris' evaluation of Bob must add up to -1</i>	

Ann's final mark: $(63 + 61) / 2 = 62\%$

Source: The Centre for Teaching Excellence Environment 1,
 Office 325 University of Waterloo, 200 University Avenue West
 Waterloo, Ontario, Canada N2L 3G1

Examples of assessment forms

Source: Barkley, E.F., Cross, K.P. & Major, C.H. (2005)

EXHIBIT 6.1
Sample Self-Evaluation Form

Name _____
 Group Number or ID _____
 Project Title _____

Rate yourself on your performance on the project using the following scale:
5 = Always 4 = Frequently 3 = Sometimes 2 = Rarely 1 = Never

I was prepared to contribute to the group	
I stayed on task	
I listened to others	
I participated in discussion	
I encouraged others to participate	
Overall I felt my performance in the group should be rated:	

Example of peer-assessment form

EXHIBIT 6.2
Sample Peer Evaluation Form

	<i>Needs Improvement = 1</i>	<i>Adequate = 2</i>	<i>Outstanding = 3</i>
The team member ...			
<i>Prepares</i>			
<i>Listens</i>			
<i>Contributes</i>			
<i>Respects others</i>			
Demonstrates the following skills ...			
<i>Critical thinking</i>			
<i>Problem solving</i>			
<i>Communication</i>			
<i>Decision making</i>			
Subtotals			
	Total		

Group assessment example

EXHIBIT 6.3

Sample Group Evaluation Form

1. Overall, how effectively did your group work together on this assignment?

Poorly Adequately Well Extremely Well
2. Out of the five group members, how many participated actively most of the time?

None One Two Three Four Five
3. Out of the five group members, how many were fully prepared for the activity?

None One Two Three Four Five
4. Give one specific example of something you learned from the group that you probably wouldn't have learned working alone.

5. Give one specific example of something the other group members learned from you that they probably wouldn't have learned otherwise.

6. Suggest one change the group could make to improve its performance.

Source: Barkley, E.F., Cross, K.P. & Major, C.H. (2005). *Collaborative Learning Techniques: A handbook for college faculty*. John Wiley & Sons.

Biocore Group Effort Analysis Rubric

Rev. 9/12/10

Criteria	Poor=1	Good=3	Excellent=5
Attendance and punctuality at lectures and/or group lab meetings	Member frequently absent or late, and did not inform or contact team about absence or tardiness	Member present and on time at most meetings/lectures. When absence necessary, often informed team members and worked to resolve issues associated with absence.	Present and punctual at all meetings/lectures and communicated if any extenuating circumstances or irregularity occurred.
Participation in discussion of in-class problems or project or project planning, data collection, data analysis	Member did not actively participate in discussion and did not contribute to group progress.	Most of the time made an attempt to understand the assignment and participates and contribute to the discussion.	Meaningfully participated in all discussions, anticipated future needs of the group, and took initiative in monitoring group progress.
Preparedness for in-class discussion or research meetings	Did not prepare prior to class/group meeting.	Most of the time prepared prior to meeting time with ideas/questions to discuss.	Came prepared for all meetings with ideas/questions to discuss.
Ability to listen to others ideas/concerns of others	Did not listen to or attempted to ignore ideas or concerns of others. Consistently dominated or withdrew from discussions.	Patiently and actively listened to ideas and concerns of others, most of the time	Helped develop an atmosphere in the group where everyone's ideas and concerns are heard by modeling patient and active listening.
Ability to cooperate and/or compromise	Practiced competitive, uncooperative group behaviors that inhibited the group from achieving goals.	Worked cooperatively most of the time, and compromised to help group achieve goals.	Welcomed discussion and critique of ideas in a supportive, cooperative positive environment. Worked to overcome negative, competitive group dynamics if necessary. Encouraged group to maintain high standards of group conduct.
Fulfills assigned group role (e.g recorder, facilitator, time keeper, 'devils advocate', reporter etc.)	Understood role, but did not fulfill or attempt to fulfill assignment, resulting in job not done or other members having to complete job.	Fulfilled assigned role, but did not take full responsibility to integrate role with others.	Fulfilled assigned role, worked to support others in fulfilling their role, and helped to integrate work to produce a high quality final project.

Batzli, J. and Harris, M. 2010. Biocore, UW Madison

Biocore 304 Group Effort Analysis

rev. 01/25/11

Team _____ Rating: 1 = poor 2 = so-so 3 = good 4 = very good 5 = excellent

Name of student being evaluated:	1	2	3	4	5	Name of student being evaluated:	1	2	3	4	5
Attendance & punctuality at meetings						Attendance & punctuality at meetings					
Preparedness for meetings						Preparedness for meetings					
Participation in data collection						Participation in data collection					
Participation in data analysis						Participation in data analysis					
Ability to listen to ideas/concerns of others						Ability to listen to ideas/concerns of others					
Ability to cooperate and/or compromise						Ability to cooperate and/or compromise					
Participation in planning project						Participation in planning project					
Overall team effort						Overall team effort					
Other comments?						Other comments?					

Name of student being evaluated:	1	2	3	4	5	Self Evaluation (Please sign)	1	2	3	4	5
Attendance & punctuality at meetings						Attendance & punctuality at meetings					
Preparedness for meetings						Preparedness for meetings					
Participation in data collection						Participation in data collection					
Participation in data analysis						Participation in data analysis					
Ability to listen to ideas/concerns of others						Ability to listen to ideas/concerns of others					
Ability to cooperate and/or compromise						Ability to cooperate and/or compromise					
Participation in planning project						Participation in planning project					
Overall team effort						Overall team effort					
Other comments?						How did you personally contribute? What could you improve on as a group member?					

Groupwork reflection exercises in the classroom

Source: *The Centre for Teaching Excellence, University of Waterloo*

I. Encouraging Self-Awareness and Reflection in Group Work

One of the most important things you can do as an instructor is to have students reflect regularly on their group experiences. Their self-reflection will reinforce and further develop critical teamwork skills. Based on your objectives for the group project, create a set of prompts using the questions below. Have students then use these prompts to journal about their reactions to group climate and process. The journals encourage self-reflection and can help students see teamwork issues in new ways and create ideas for resolution. They can also provide a good basis from which students can choose comments to share with their group members in debriefing sessions. If students submit their journals periodically throughout the semester, give them feedback orally or in writing, and to the extent appropriate, discuss in class any trends that you have identified through observation or in the journals (e.g., reassure groups that many are facing similar challenges). Also, requiring all students to submit a final reflective report after the group project can help them to see the value of the teamwork expertise they have developed through practice.

Climate

- What have you enjoyed the most/the least about getting to know your group members?
- How is your attitude towards your group members demonstrated in how you function within the group?
- How do you demonstrate trust and openness towards the other members and their ideas?
- Do you give honest opinions? If not, why not?
- How much do you feel you can rely on your group members to complete the required task(s)?
- How do you make sure that group members feel supported, encouraged, and appreciated for their work?
- How does the team ensure that all voices are heard?
- Do you participate willingly in the discussion? If not, why not?
- Do others appear to understand your ideas? If not, why not?
- What do you do if another person's ideas are unclear?
- What do you focus on when others speak? How could you improve your listening skills?
- How do you respond to others' ideas? How do they respond to yours? What could be improved?

Process

- What are your group's ground rules and goals? What changes to these rules and goals might improve the functioning of your group?
- How is everyone encouraged to stay accountable to the tasks they have been assigned?
- To what extent do you and others follow the feedback methods laid out in class? How could you and your group members improve the way you give and receive feedback?
- To what extent does your group reflect on how well its goals are being achieved? How would more (or less) discussion about goals help or hinder your group's functioning?
- How are decisions made in your group? Who is involved and in which ways? What has been effective about the processes you have used? How could your decision-making processes be improved?
- What happens if a group member is unhappy or uncomfortable with a decision made by the group?

- What conflicts have arisen within your group? How (if at all) have the conflicts been resolved? What role do you play in resolving these conflicts? What could you (or others) do to improve your group's ability to deal productively with conflict?
- How do your meetings typically proceed? What do you accomplish and in how much time? What is effective about your group functioning during meetings? What changes would improve your meetings?
- Who has emerged as the leader in your group? Which other roles do you see team members playing? Which role(s) do you play? Which role do you prefer and why?

II. "Are We a Team?" Checklist

Check off the statements that accurately represent your group. Be prepared to discuss your choices afterwards with your group. Also consider ways to improve your group's functioning, especially as it relates to the statements you did not check off.

- We all show equal commitment to our objective.
- We all take part in deciding how work should be allocated.
- We are committed to helping each other learn.
- We acknowledge good contributions from team members.
- We handle disagreements and conflicts constructively within the team.
- We are able to give constructive criticism to one another and to accept it ourselves.
- We all turn up to meetings and stay to the end.
- We are good at making sure that everyone knows what's going on.
- When one of us is under pressure, others offer to help him or her.
- We trust each other.
- We remain united even when we disagree.
- We support each other to outsiders.
- We feel comfortable and relaxed with one another. (Levin & Kent, 2001)

Selected references

Barkley, E.F., Cross, K.P. & Major, C.H. (2005). Collaborative Learning Techniques: A handbook for college faculty. John Wiley & Sons.

After an introduction to implementing collaborative learning in the college classroom, orienting students, structuring tasks, grading and evaluating collaborative learning, the authors provide dozens of detailed, specific examples of collaborative learning techniques, with suggested group size, time on task and session requirement. Examples include activities for discussions (think-pair-share, critical debate, round robin etc.), reciprocal teaching (learning cell, fishbowl, role play, jigsaw), problem-solving, activities using graphic information organizers, and techniques focusing specifically on writing.

Cooper, J.L., Robinson, P. & Ball, D. (eds.) (2003). Small group instruction in higher education: lessons from the past, visions of the future. New Forums Press, Stillwater OK.

Distinguishing between collaborative and cooperative learning, the authors build on educational research when describing how cooperative learning can enhance critical thinking skills, and why it is worth using this framework in the college classroom. In two detailed chapters they provide dozens of informal as well as formal cooperative learning activities and examples. A unique feature of this book is the chapter on troubleshooting cooperative learning, with examples and tips on how to deal with uncooperative or unprepared students, bad group dynamics, and how to support students in cooperative classrooms.

DuBrin, A.J. (1995). The Breakthrough Team Player: Becoming the M.V.P. on your workplace team. AMACOM, American Management Association, New York.

Although primarily written for workplace teams, many principles are applicable in education, and the author offers great examples and activities for team building. Great chapters on group roles, both effective and ineffective, self- and team-assessment examples, and suggestions on developing cross-functional skills. Focuses on the development of task- as well as people-related skills.

Falchikov, N. (2001). Learning together – peer tutoring in higher education. Routledge, London & New York.

Comprehensive work detailing the beneficial effects of using peer-tutoring in the classroom, pairs as well as small groups, theoretical framework of peer tutoring, tips on how to help students become peer tutors, strategies on evaluating peer tutoring schemes. Practical advice on problems associated with peer tutoring, technology-supported collaborative learning, supported by practitioners' accounts.

Frey, N., Fisher, D. & Everlove, S. (2009) Productive group work – How to engage students, build teamwork, and promote understanding. ASCD, Alexandria, VA.

Concise, practical guide to cooperative learning. Chapters on building social skills for groupwork, activities, practitioners' accounts, with a unique questions&answers chapter where the most common concerns in connection with groupwork are addressed. Middle/high school level.

Gillies, R.M., Ashman, A. & Terwel, J. (eds.) (2008). The teacher's role in implementing cooperative learning in the classroom. Springer.

Collection of research articles and reviews about cooperative learning, mostly in middle and high school settings. Main themes are structuring cooperative learning to promote thinking and learning, feedback and reflection, teacher practices and small group dynamics.

Halfhill, T.R. & Nielsen, T.M. (2007). Quantifying the "Softer Side" of Management Education: An Example Using Teamwork Competencies. *Journal of Management Education*, 31: 64

This article presents one method of quantifying the “softer side” of management education. It provides instruction and resources for educators and organizational professionals to administer, analyze, score, and provide quality feedback on virtually any competency area. The method is developmental in that it identifies individual, group, and organizational strengths and developmental opportunities. It is also an effective method of demonstrating the value of “soft skills” to students. Examples of self, peer and group-evaluation schemes.

Johnson, D.W. & Johnson, R.T. (2004). Assessing students in groups – promoting group responsibility and individual accountability.

Practical advice to developing successful assessment plans for cooperative groups, self-assessment, group level assessment, peer assessment levels. Suggestions on observation, interviewing students, developing self-awareness, structuring groups well. Many examples and pre-developed rubrics, guides and activities for cooperative groups.

Johnson, D.W., Johnson, R.T. & Smith, K.A. (1998). Cooperative Learning Returns To College What Evidence Is There That It Works?, *Change: The Magazine of Higher Learning* 30:26-35

The authors review the theory underlying the use of cooperative learning, the research on it conducted at the college level, and the ways it may be used appropriately in college classes. Online at: <http://www.sjsu.edu/advising/docs/CooperativeLearning.pdf>

Johnson, D.W., Johnson, R.T. & Smith, K.A. (2006). Active learning: cooperation in the college classroom. Interaction Book Company, Edina, MN.

Besides a great overview of cooperative learning in college, formal and informal cooperative learning goals, this book also provides suggestions for how to teach social and group skills well, for monitoring group behavior, and for assessment and evaluation of groupwork. Many example lesson plans, activities, guides to create successful classes, evaluation tools and many more.

Jones, K. A. & Jones, J. L. (2008). Making Cooperative Learning Work in the College Classroom: An Application of the ‘Five Pillars’ of Cooperative Learning to Post-Secondary Instruction. *The Journal of Effective Teaching* 8:61-76.

This paper highlights the work of teacher educator Dr. Paul J. Vermette in his implementation of cooperative learning based practices in a graduate level Multicultural education course. In analyzing the ‘Five Pillars’ of cooperative learning as outlined by Johnson, Johnson & Smith (1991), this article highlights Vermette’s implementation of cooperative learning structures to this theoretical framework. Through narratives of Vermette’s actual teaching, the authors will provide suggestions for implementing cooperative learning in the college classroom. Online at: http://uncw.edu/cte/ET/articles/Vol8_2/Jones.htm

Millis, B. J. (ed.) (2010). Cooperative learning in higher education: Across the discipline, across the academy. Stylus, Sterling, VA.

Cooperative learning techniques and real-class examples from various disciplines: Accounting, Chemistry, Mathematics, Educational Psychology, Engineering, Statistics, Biology, Literature, Economics, Geological Sciences.

Millis, B.J. & Cottell, P.G. (1998) Cooperative learning for higher education faculty. American Council on Education, Oryx Press.

After an overview of cooperative learning in higher education (Part 1), the authors offer advice on planning and managing a cooperative classroom (Part 2). In Part 3, Millis and Cottell detail the importance of structure in cooperative courses, how to design groups, along with lots of great activities outlined. Chapters on basic paired teaching and reciprocal teaching, along with usage of technology to enhance cooperative learning are followed by assessment techniques and principles in Part 4.

Nilson, L.B. (1998). *Teaching at its best. A research-based resource for college instructors.* Vanderbilt.

Chapter on cooperative learning is very concise, with quick tips and guidelines for successful facilitation of collaborative learning in the college classroom. Great for someone not trying to become an expert on groupwork, but looking for a good, straightforward overview of what to do, and what not to do.

Peeters-Baars, M.A.G. (2006). *Design teams and personality: effects of team composition on processes and effectiveness.* Eindhoven, Technische Universiteit Eindhoven.

This dissertation work focuses on how to design successful teams based on Big Five Personality Traits, how the different combinations are connected to team performance and satisfaction with the team, and possible implications for education. Available at:

<http://alexandria.tue.nl/extra2/200610413.pdf>

Robbins, H. & Finley, M. (2000). *Why teams don't work: What goes wrong and how to make it right.* Berrett-Koehler Publishers, Inc., San Francisco.

Insightful thoughts and examples of inadequate team behavior, causes and suggestions for solutions mainly from business perspectives. Delves into dealing with difficult people, communication pitfalls and how to overcome them, many myths surrounding teamwork and the capability of teams, and provides guidance for getting a team successfully through the four stages: forming, storming, norming and performing.

Sharan, S. (ed.) (1994). *Handbook of cooperative learning methods.* Greenwood Press, Westport, CT.

Besides providing a theoretical background in cooperative learning, and reasons from research why it enhances student understanding, individual chapters detail methods and examples in various disciplines: language arts, second-language classes, literature, mathematics.

Smith, K.A., Sheppard, S.D., Johnson, D.W. & Johnson, R.T. (2005). *Pedagogies of engagement: Classroom-based practices.* *Journal of Engineering Education* 94:87-101

This paper focuses on classroom-based pedagogies of engagement, particularly cooperative and problem-based learning. It includes a brief history, theoretical roots, research support, summary of practices, and suggestions for redesigning engineering classes and programs to include more student engagement. The paper also lays out the research ahead for advancing pedagogies aimed at more fully enhancing students' involvement in their learning.

Snodgrass, D.M. & Bevevino, M.M. (2000). *Collaborative learning in middle & secondary schools: applications and assessments.* Eye on Education.

Simple collaborative learning models, complex models, collaborative planning and coteaching, social skills, assessing student process, participation and product. Examples given primarily for middle and secondary school cooperative learning groups.

Thousand, J.S., Villa, R.A. & Nevin, A.I. (1994). Creativity and collaborative learning: A practical guide to empowering students and teachers. Paul H. Brookes Publishing, Baltimore, Maryland.

Internationally recognize education experts offer advice on cooperative learning at elementary, middle and high school, as well as college levels. Creative cooperative lesson plans are outlined at all levels, along with chapters on disruptive student behavior, suggestions on building connections and relationships in the classroom.

Online resources

The Foundation Coalition

Foundation Coalition. (2008). Positive interdependence, individual accountability, promotive interaction: Three pillars of cooperative learning.

Relevance of the three pillars, through theory, concise examples and references to more in-depth ones. Evaluation, tips for anticipating and overcoming student resistance, summary of some pitfalls in connection with cooperative learning settings.

Online at: http://www.foundationcoalition.org/publications/brochures/acl_piapi.pdf

The Centre for Teaching Excellence

Teaching tips, web resources, teaching with technology, group work tasks, tips and many more.

Available at: http://cte.uwaterloo.ca/teaching_resources/index.html

Derek Bok Center for Teaching and Learning, Harvard University

This guide is intended to be short and simply written for students who are working in groups, but who may not be very interested in too much detail. It also provides teachers (and students) with tips on assigning group projects, ways to organize groups, and what to do when the process goes awry.

Available at: <http://isites.harvard.edu/fs/html/icb.topic58474/wigintro.html#wig6>

The Carl Wieman Science Education Initiative, University of British Columbia

Among many valuable teaching aids, this particular file briefly reviews different levels of group work and list the potential benefits and negatives, and what requirements research has shown are needed to ensure a high probability of success.

Available at: http://www.cwsei.ubc.ca/resources/files/Group_work_SEI_8-08.pdf