THE UNIVERSITY OF ADELAIDE
AUSTRALIA

Leap into...

Collaborative Learning

This publication is designed for University of Adelaide staff who are interested in collaborative learning—what it is and how it can be put into practice to enhance learning and teaching.

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Introduction

Collaborative Learning

There is an upswing in demand by staff, students and employers for students to graduate with good interpersonal skills, knowledge of group dynamics, the flexibility to work in teams, the ability to lead, to problem-solve and to communicate effectively. New curricula include a strong emphasis on generic skills, and we have the task of turning those emphases into actual graduate attributes. In the process, teachers' roles are changing from imparting information to facilitating students' acquisition of learning and generic skills.

In this publication we have taken a pragmatic approach to getting collaborative learning (groupwork, teamwork) going in classrooms. Research-based principles are accompanied by examples, links to web sites and extensive reading lists.

What will you find here?

We have started with the 'What?' and the 'Why?' of collaborative learning and then focused on the importance of making clear the learning objectives of the collaborative learning project or assignment or task.

From there, we have looked at activities that lend themselves to achieving the objectives, getting the students started, monitoring how they're progressing, and assessing not only for knowledge, but also for the development of process skills.

Finally, we have included a brief overview of how to evaluate the collaborative learning process to give both you and your students feedback.

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What is Collaborative Learning?

Collaborative learning is learning that occurs as a result of interaction between peers engaged in the completion of a common task. Students are not only 'in' groups, they 'work' together in groups, playing a significant role in each other's learning. The collaborative learning process creates an understanding of a topic and/or process within a group which members of the group could not achieve alone. Students may work face to face and in or out of the classroom, or they may use information technology to enable group discussion, or to complete collaborative writing tasks.

What's in a name?

Collaborative learning emphasises the learning aspect of working together. Talking about group (or any other) 'teaching' continues to place the emphasis on what a tutor or lecturer does, rather than on what students can do to initiate and manage their own learning through collaboration with others.

Collaborative learning is the umbrella term encompassing many forms of collaborative learning—from small group projects to the more specific form of group work called cooperative learning. (Nagata and Ronkowski 1998[1])

Both terms share a sense of the social nature of learning, and emphasise a social approach to the development of learning skills, work skills and life skills.

The terms are often used interchangeably, although there is sometimes a hint at two ends of a spectrum, with cooperative learning tending to be undertaken face to face and highly structured by a teacher, and collaborative learning assigning responsibility primarily to the students.

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What can we use collaborative learning for?

One of the commonest purposes of collaborative learning is the completion of a group project. However, collaborative learning groups can be formed for many purposes to get students engaged with subject matter in any discipline. This might happen online, in a laboratory, in the field, in a classroom. It may be possible to introduce cross-curricular projects—involving, in science for example, a biologist, an environmentalist, a biochemist, a microbiologist, a geneticist. Such collaborations are increasingly required in many workplace projects.

Successful collaborative projects have the following characteristics:

- the problem to be solved is an example of the types of problems found in the community, in industry or in commerce
- the solution to the problem requires the use of knowledge, skills and attributes that are part of the curriculum
- the problem can be solved by a small team of students, none of whom possesses the knowledge or skills to solve the problem alone, yet each of whom is able to contribute to the final product.

(Miller, Imrie and Cox 1998, p.162[2])

Collaborative learning activities can provide students with the opportunity to think for themselves, compare their thinking with others, conduct small research projects, investigate subject matter with fellow students, and to practice using higher level cognitive thinking skills. It can provide activities that encourage students to confront the logic of their own thinking, their own beliefs, and the accuracy of their understanding of previous learning. (Nagata and Ronkowski 1998[1])

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Why introduce Collaborative Learning?

Collaborative learning, like problem-based learning, emphasises student-centred tasks and student decision-making by:

- encouraging a focus on student-centred learning and the development of lifelong transferable learning skills
- providing an alternative to the individual, competitive model of learning, fostering teamwork and the development of interpersonal skills
- encouraging a smoother transition to university
- developing generic skills needed to satisfy employer expectations.

It takes time...

Collaborative learning runs against a well-entrenched ethos of competition, and so takes time to be accepted by both staff and students. Collaborative learning needs to be carefully marketed and structured, and students well-prepared.

It takes time to change a competitive culture.

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Encouraging student-centred learning

The literature on collaborative learning highlights the improvement in 'higher order' learning skills through peer collaborations:

- discussing
- negotiating
- interpreting
- organising
- applying learning in new situations
- clarifying
- discarding
- re-doing
- problem-solving

In collaborative situations where students must generate explanations for others, or justify their perspective on or approach to an issue, their ability to comprehend and recall at a later date is increased. Multiple perspectives on issues are possible (in all subject areas), and when students are forced to confront differences of opinion or interpretation, or ambiguity, creative and critical thinking are likely to develop.

When they are in a group, students are more likely to take learning risks, and to try new ways of doing and learning, than when they are working individually. Tasks that an individual might have put in the 'too-hard' basket cannot be ignored by a whole group.

Students working collaboratively can cover more ground and get more done than an individual student by sharing references, resources, and ideas. And there is scope for specialisation.

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With collaborative learning students are encouraged to focus on process as well as end results, particularly if the assessment includes process skills. Reflection on the learning process is more likely following working in a group.

There is also some evidence in the literature that collaborative learning reduces absenteeism because students feel a responsibility to the group. Collaborative learning also promotes time/task management skills.

> **There are benefits for staff too ...**
>
> Staff using collaborative learning like the opportunity to introduce a range of themes, topics and/or projects and have students use a wider range of resources.
>
> They find they engage more with individual students, which increases satisfaction for both staff and students.

Enhancing interpersonal skills

- Students learn to be both dependent and independent; mutual obligation is encouraged with the sharing of ideas, roles and resources.
- Students are encouraged to listen and to be non-judgemental, to be adaptable and cooperative.
- Inclusiveness and confidence are fostered by projects or tasks that are 'led' by students rather than directed by staff.
- Anxiety about speaking or performing in public is likely to be reduced because of the sustained long-term interaction with others. This is especially valuable for students for whom English is a second language.

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Improving the transition to university

A successful transition to university is crucial to student motivation—and to retention. Research suggests that students engaged in collaborative learning activities are less likely to withdraw as a result of feelings of isolation or not belonging. Collaborative learning activities can meet some of the emotional needs of students—needs that are largely overlooked in crowded lecture theatres and competitive learning situations.

Collaborative learning groups have the potential to provide students with a natural support system in an environment that many find overwhelming, uncaring, lonely or alienating.

Understanding the learning culture can be achieved through the social as well as the academic interaction of groups. This is more difficult to achieve in the formal lecture environment. If care is taken in the formation of, and tasks given to, groups then gender and cultural differences may matter less in collaborative learning situations as students gain respect for their peers as co-learners.

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Developing generic skills to meet employer expectations

Satisfaction among Australian employers with new graduates entering the labour market is low, especially in regard to communication skills, interpersonal skills, problem solving skills and business practice (AC Nielsen Research Services 2000[3]). These are precisely the skills that collaborative learning activities can develop.

> Collaborative learning activities prepare students in any discipline for the world of work. Consider, for example, the key importance of 'collaborative links between industry, research organisations, educational institutions and government agencies' in the Cooperative Research Centres Program (DITR 2001[4]).

Employers value people who can work in teams. It is important for graduates to be able to demonstrate to employers that they have the necessary skills. Collaborative work is part of the daily operation of many organisations—along with collaborative monitoring. Employers look for graduates who are able to motivate themselves, and to make continuous assessments of their own contributions to a project as well as those of other team members.

The University of Adelaide's graduate attributes

Align collaborative learning activities in your course with the University's Learning and Teaching Plan and with your own Faculty's Learning and Teaching Plan and Graduate Attributes.

A goal of the University of Adelaide Learning and Teaching Plan is to assist all students to develop lifelong learning skills and attributes. One strategy that addresses this goal is the University's listing of graduate attributes.

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The list includes characteristics that can be fostered by collaborative learning, including:

- cognitive skills such as the ability to analyse, evaluate and synthesise information
- critical thinking and problem-solving skills
- numeracy, literacy and visual communication skills
- skills in interpersonal understanding, with the capacity to communicate effectively and to work both independently and cooperatively
- a commitment to continuous learning.

Faculties have been asked to prepare a list of graduate attributes for every major academic program. There is an expectation that these attributes will be linked to the structure and assessment of academic programs.

Some University of Adelaide faculties and schools have implemented strategies to develop lifelong learning skills. For example, the School of Commerce has a Communication Skills Program that embeds the learning of communication skills in all their courses. The Faculty of Engineering, Computer and Mathematical Sciences has formulated academic program/departmental-level graduate attributes which correlate to the University's graduate attributes.

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Beginning

Introducing collaborative learning tasks into a course involves careful planning and preparation of students.

Designing projects and activities

Carefully consider the following when you are designing collaborative learning (or any other for that matter!) activities:

- Do the objectives include knowledge and application of content as well as process skills such as evidence of cooperation and specific communication skills?
- What activities would best enable students to demonstrate the achievement of these objectives?
- Are there appropriate resources available for students to achieve the learning objectives?
- In what ways can each objective be assessed? Which objectives can best be assessed individually and which as collaborative work?

Make sure you have stated clearly all the objectives of the collaborative project/s, associated tasks and activities, and the assessment requirements.

See Holger Maier's 'Mekong E-sim' Leap case study for an example of how objectives were used and applied in an online collaboration.

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Tip!

Focus on the learning objectives of the course.

Organising collaborative learning groups

When organising student groups for collaborative learning, consider the following:

- Will they be self-selected, or allocated by staff?
- Will they be heterogeneous or homogeneous?
- How many students will there be in a group?
- How often should groups meet?

Self-selection or not?

A good way to create collaborative learning groups is to have students nominate their interest in particular questions or tasks, and allocate them to a group accordingly. These groups are likely to be heterogeneous.

If allowed to self-select, students are likely to group themselves in teams that are homogeneous with regard to ethnic and achievement levels. And there's often someone left out. Self-selection may reinforce students' stereotyping, and have the effect of polarising groups. In any case, it is rare in the workplace for employees to choose members of their team.

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When students are new to a course and don't know each other, they will find it easier to be put into groups—some may be reluctant participants, and others may be shy about the choosing/being chosen situation. This also gives them a structured way to meet others. Some staff have a deliberate policy of putting new students into small groups for short periods for the very purpose of getting to know others, so that later they are able to make informed choices if they do have to choose a group for a more sustained project.

A compromise is to ask students to team up with one other person, then ask the pairs to team with another pair.

Heterogeneity or not?

If there are marked ability differences (and at the beginning of a course you cannot always know this) it is likely that heterogeneity is better than homogeneity for promoting learning. Heterogeneity allows a mixing of ability levels, of learning styles, of students from various backgrounds, of younger and older students, and of genders. You may deliberately choose to mix genders and cultures in order to break down barriers and build on tasks that require different perspectives. If you are serious about internationalising the curriculum, this is one way to approach it. (Mixing cultures needs to be done sensitively. See the University's equity and diversity policy.)

How many to a group?

Small groups work faster, and coordination, especially arranging meetings, is easier than in large groups. But a small group may lack the range of skills necessary to complete a complex project. The optimal number of students working together will depend on your perception of what the task/project requires and whether there are enough tasks to be allocated to each member.

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For problem-solving tasks and large projects a group of four to six may be best. With three it's easy for one to be left out; in a group larger than six, some students will find it easier to remain silent and uninvolved.

A group larger than six requires a very sophisticated level of communication skills to operate effectively.

How often should groups meet?

How often groups meet is a decision that can usually be left to the students, within the limits you prescribe. Students need to decide how often to meet in order to complete the required tasks, but you can set or negotiate a required minimum, or maximum, or guidelines to enable the work to be done effectively.

Online groups should meet face to face initially if possible.

Go to the SkillCity website for practical strategies being used in university classrooms around Australia for developing group and team skills.

Tip!

Maintain the balance between content and process. Explain the purpose of the activity, and what skills and knowledge you want students to demonstrate.

Build in checks along the way—self, peer or teacher assessment—to make sure everyone is on the right track and pulling their weight.

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Preparing students

Students need to be prepared for collaborative learning, and this takes time—time that is easily overlooked, but is a necessary investment for a successful outcome.

There is really no substitute for face to face preparation to establish a sense of 'groupness' in the classroom, and getting as close as possible to that online.

Getting started

Allocate 1 to 2 hours (preferably during the first class or online forum) for forming groups, introducing students to the requirements of the task and undertaking team-building activities.

- Give clear instructions about how the students are to form groups.
- Give the groups time to know at least each other's names.
- Be clear about what skills, both interpersonal and cognitive, students will need in order to make the collaborative process work.
- Define the tasks and expected outcomes.
- Outline the skills you expect students will develop as a result.
- Explain the process of collaboration and your own role.
- Clarify the marking/assessment system.
- Allow time for students to clarify the tasks with each other and with you.

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Team building

- Discuss what happens in effective groups—how they function, roles and responsibilities, and group dynamics.
- Ask students to consider the ups and downs of working collaboratively or being in a group or team—a sporting team, for example, or a work situation.
- Encourage students to make decisions for themselves about defining and refining tasks, about investigative and research methods, and about how to proceed at each stage.

Johnson and Johnson (2000) is a useful reference for building teams and setting norms for how groups will operate.

Ensure that online students are allocated into groups using *MyUni*, and ask them to send a photo to each other and a bionote. Their first assignment could involve establishing roles, responsibilities, goals and timelines.

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Group interaction

When the groups are first formed, you can get students to undertake an activity which demonstrates good group skills, and promotes a group/team feeling:

Structuring the groups

Allocate roles such as minute-taker/notetaker, facilitator and time keeper for a short discussion on the project topic or on setting norms. This can be done by asking each group member to number off from 1—4 (or however many are in the group) and allocating the task of notetaker to 1, time keeper to 2 etc.

For the next task, allocate roles to different numbers. Emphasise the importance of each member taking on and learning new skills.

Once the students are in their groups, reaching agreement on group norms (how the group should operate) is important:

Setting norms

Exercise 1 is a way of doing this. Give students 10 minutes to do the exercise within their groups and allow time (another 10 minutes) for discussion of any differences between groups.

Have the groups record their group norms on the board, or ask a student to list them as each group gives their summary.

Ask 'Does anyone have anything to add?' to ensure that all students are comfortable with the list, and that it is as comprehensive as possible. Add anything significant students have missed.

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The following activity encourages students to begin, and also to observe, group behaviour:

Awareness of process

Give each group a small task—a simple problem to be completed and reviewed within about 15-20 minutes (perhaps necessitating some negotiation, or where students will need to clarify a position). In the field of literature, for example, you could ask groups to reconcile conflicting impressions of a text or performance; in design studies or engineering you could ask students to choose a 'winner' out of two competing designs or constructions, and explain their choice.

Allocate a time keeper, record keeper and observer. Have each observer comment on the quality of the group interaction, and ask others to contribute to this.

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Allocating projects and defining tasks

Choice is an important element in motivation and makes for more interesting presentations and marking!. If students can choose a topic and then form a group to work on that topic, they are likely to be committed to the task. Whether students are able to choose from a list of projects, and choose how they carry out a given project, will depend on the learning outcomes you are seeking and whether you will be able to assess different choices fairly.

Students will work best when they are well-prepared to focus on the outcomes of the activity.

Possible outcomes include:

- a project
- a report
- a plan or model
- a seminar on the project/activity
- an evaluation of defined process skills
- a poster
- a position paper
- a research proposal
- a web site or multimedia presentation
- a PowerPoint presentation

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Investing time in the preparatory stage

Don't rush this initial stage. Time spent now will make projects run more smoothly later on. Be prepared to spend 1 to 2 hours for this introduction, with extra time for reinforcement and reassurance.

Online, you may need more time, depending on the experience and maturity of the groups, and how much they themselves contribute to the preparation. It can be efficient to base discussion on written guidelines that students are required to have read beforehand. (See also Group dynamics in online discussions, especially Preparatory work and Beginnings, part of a Flinders University resource about collaborative learning[5].)

Groups will function much more efficiently if students do not have the added (and onerous) responsibility of organising their own meeting rooms. So, if you can, at the end of the first session ensure that each group has been allocated a place where they can meet. Some may prefer to organise their own space, and tend to use the refectory or common rooms.

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Monitoring

Seeking formal and informal feedback

Monitoring provides feedback to both you and the students on progress, and is essential to support the students' learning and management of their groups. Monitoring can be in the form of assessment tasks, or less formal requirements:

- a brief weekly/fortnightly report that includes meeting times, who attended, tasks allocated and decisions made
- a formal proposal, oral or written, of each group's project topic, timeline, resources to be used, allocation of tasks, style of final presentation
- evaluation of progress at the mid-point of the project using self and peer assessment (*see Exercise 2 on page 33 and Exercise 4 on page 36*)
- student journals or diaries, collected randomly or at specified times, with specific tasks or topics addressed, and which include a reflection on learning (a Leap case study by John Wetherell and Gerry Mullins describes the use of journals for reflection and self-appraisal)
- an oral presentation by each group on their progress with the topic, either informal for feedback or formal for assessment, at the mid-point in the project or assignment
- a draft report, essay, poster, Microsoft PowerPoint or other presentation two weeks before the final hand-up/presentation is due, for a small percentage of the final assessment or for peer review with specific criteria (*see Exercise 4 on page 36*)

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A Leap case study by Derek Abbott (Department of Electrical and Electronic Engineering) is a guide to getting students to give feedback during a course, by email or in class.

If you are alert for them, any problems in relation to collaboration are likely to be evident in the feedback sessions before they become unmanageable, or before groups waste too much time. Because students will need to produce work regularly to meet the monitoring schedule they will not lose sight of agreed tasks, and the group ethos is more likely to be sustained.

Tip!	Build in regular monitoring of the groups to avoid nasty surprises at the end.

What if some of the groups are not working?

Students should feel empowered to take the initiative in making decisions and solving problems in their collaborative work. However, your input may be required if students drop out and the group is disrupted. A group may be unable to move forward because of research problems or because they have reached a stalemate in assigning tasks or sections for writing up.

You may need to assist in the resolution of difficulties or complaints as they arise, not just at agreed monitoring stages. However, ask the whole group to meet with you rather than negotiating with individuals, and ask the students for possible solutions to their problem before you act to impose one.

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How can problems arising from difference/diversity be handled?

Some students may be unwilling to be part of a team, or to include others. Sometimes students will complain about the group to which they have been allocated, or about particular people in the group. Other students may feel that their strengths lie in their ability to work independently, and so feel disadvantaged when obliged to work with others.

The answer to these potential problems lies largely in your preparation of students for collaborative work. Acknowledge students' differing perceptions and different approaches, emphasise the generic skills they will be developing, and allocate assessment to both individual and group tasks so that no-one feels singled out or isolated. Ask the group to renegotiate who does what in order to meet the needs of everyone.

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Assessing

Assessment drives learning. Students will put effort into the observable/assessable parts of projects.
But how fair is group assessment? What is assessed? And who does it?

Why assess the collaborativeness of collaborative learning?

- to show that you value team skills
- to show that it really is one of your stated learning outcomes
- to create an opportunity for students to discuss how the group is performing

Fairness

Group grades are often an issue for students and staff. Students in particular may fear that group grades are not objectively allocated, or that they are a matter of luck or guesswork on the part of the marker.

Assessment is fairest when it includes a range of components, both individual and group. It's important to include in the assessment process ways for students to demonstrate that all objectives (process & product) are being met.

Tip!

Check the progress of your groups along the way with some formative assessment—assessment designed primarily to give timely feedback to both the students and you.

Establish assessment checkpoints—dates when tasks are due, presentations are to be made, minutes to be handed in.

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Assessing process skills

Assessing process skills ensures that students have an incentive for taking collaboration seriously. Students can identify the process skills that will enable their groups to function well and can assess the process because they are in the best position to know what is happening in their groups.

Tip!	Assessment drives learning: assess elements of both product and process.

Involve students in developing the criteria by which group process is assessed. When students generate the criteria, they are likely to be committed to them (*see Exercise 1 on page 30*). Make sure they have a chance to practise self (*see Exercise 2 on page 33*) or peer assessment (*see Exercise 4 on page 36*) midway through the project or assignment. Staff can assess the collaborative nature of the product if they have enough evidence of who is contributing what, and so tasks should be structured to show the input of each student.

Build-in ways to teach or demonstrate the process skills implicit or explicit in the learning objectives. If conflict resolution has been identified as an important skill to learn, provide one or two approaches and give students time to practise them.

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Students are more highly motivated and better prepared for collaborative learning:

- when they understand clearly how the tasks involved in the collaborative learning project and their role/s in those tasks are related to assessment
- when learning objectives and assessment are clearly linked
- when they accept or negotiate both the objectives and the assessment process.

Criteria for assessing process skills

Assessment criteria need to be observable. 'Good listening skills', for example, could be assessed by observing that a student:

- uses open questions
- checks for understanding
- paraphrases or summarises
- asks for examples when a generalisation is made.

When marks are allocated for 'contribution to the group' or for 'teamwork', these elements will need to have been clearly defined at the beginning. In the introductory session ask students to list what they think would be features of a good project / report / presentation, how they think roles and tasks should be assessed, how they think contribution should be assessed, and so on. Once collated these can be discussed in class and a set of criteria agreed to. Exercise 1 is one way of doing this.

Tips!	Make sure the students know what you are going to assess and how you will do it. Assess against all your learning objectives & assess along the way.

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Who assesses?

Should students take part in the assessment of collaborative projects or tasks? Self and peer assessment, rather than teacher assessment, gives learners a greater ownership of the learning they are undertaking. The case for this is made in the following:

> Assessment is not then a process done to them, but is a participative process in which they are themselves involved. This in turn tends to motivate students, who feel they have a greater investment in what they are doing. Using self and peer assessment makes the process much more one of learning because learners are able to share with one another the experiences they have undertaken.
>
> (Brown and Knight 1994, p. 52[6]).

Introducing appropriate assessment practices is one way of ensuring that there are no 'hitchhikers' in the collaborative learning process. Students who know that their work will be evaluated by peers are unlikely to 'free-ride'. Exam questions that relate to the collaborative project (either to process or outcome) will serve the same purpose.

Peer assessment

Involving students in assessment of their peers is one way to ensure that the mark awarded to a group member accurately reflects the individual contribution.

Students can learn valuable skills, such as reflection, analysis and fairness, when they engage in peer assessment, and they also learn to be less reliant on others as 'experts'.

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Generally, the group is in the best position to judge the relative contributions of its members. However, there are some issues in peer assessment, for example 'social loafing' and 'freewheeling', which you can help students overcome.

Some students suspect that other students will mark friends higher than they deserve, and/or lower the mark they give to perceived competitors. Mostly, students are fair, but some groups indulge in 'negotiated untruths', where they all agree to a mark before the task is done. But then, of course, they are under their own pressure to live up to the mark!

Such problems can be overcome by discussing what is fair, and by establishing class values of trust and fairness. You can also make peer assessment a learning objective of the project or course, and provide practice in developing the skills. Peer review can be a part of formative assessment, where accuracy in feedback rather than the acquiring of marks, is the motivation.

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How do you ensure that students are equipped for peer assessment?

Students need practice in peer assessment. You should present and discuss information about what constitutes reliable, fair and objective assessment using the established criteria. Students can be asked to give feedback on the work of others in their group on any or all of the following:

- undertaking background research
- collecting and analysing data
- contributing ideas
- providing leadership and direction
- contributing to the final written report and/or oral presentation

Using criteria set by the students, prepare a peer evaluation proforma (*see Exercise 2 on page 33*).

Self-assessment

> With self-assessment students take responsibility for monitoring and making judgements about aspects of their own learning, determining what is good work in any given situation.
>
> (Boud 2000[7])

Self-assessment is a valuable transferable skill, which in itself allows students to assess their acquisition of other transferable skills. To help them learn this skill, include self-assessment as a learning objective. Structure the project so that students present evidence of their progress on each learning objective, rather than giving themselves a final mark. The evidence could be presented in their journals or as a small portfolio. Students could be asked to write a brief position paper or a reflection detailing their role in the group, and an analysis of their performance.

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Assessment Exercises

Exercise 1

Establishing assessment criteria for a well-functioning group

Time: 20 minutes

Form the students into groups, ideally of between 3 and 5 members. (It has been said that a team of 8 can only work well if all are excellent communicators!)

Allocate a notetaker and a timekeeper in each group. Give the groups eight minutes to discuss the characteristics of a well-functioning group. Ask them to prioritise their list. Then, each notetaker can write their list on the board simultaneously to enable all groups to see what has been raised, and to make it easy for you to summarise. You might want to add anything that students have missed. When this has been done, students can go straight from the exercise into preliminary discussion and planning for their group project.

Students need to know each other, rather than go into this exercise cold. If they haven't met before, there are excellent exercises on team-building that create a foundation for this exercise.

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Criteria for a well-functioning group

Here are some examples of the criteria generated by five first year engineering groups.

Group 1
everyone communicates ideas
everyone knows tasks
goals, deadlines, timelines
cooperation – helping out with problems
encouraging each other
constructive criticism

Group 2
communication, discussion, questions
turning up
regular communication
contribute equally
allocating tasks
speaking freely
ideas flowing
timetable deadlines

Group 3
responsibility – delegation and acceptance
communication – all passing ideas
task allocation
cooperation
constructive criticism
clarity of ideas
cross-checking with each other

Group 4
communication: everyone knows what's going on, listening, constructive criticism
cooperation: agreeing, positivity, tolerance
time management: deadlines, meeting times
organisation: team work
initiative: different approaches, lateral thinking, don't wait

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Group 5
equal contribution
communication: keep everyone updated
dedication
compromise
punctuality
well organised
socialise
keep on task
open minded
frequent meetings
cooperation

Summary
communication
responsibility for tasks
time management
cooperation
constructive criticism

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Exercise 2

Self-assessment of process by using established criteria

(You can modify this for peer assessment.)

The first 'check point' could be a self-assessment of process—how well the team is collaborating. After a few weeks of working collaboratively, have the students self-assess their progress against the criteria they established initially. Here is an example:

Engineering and Design team work, August 2001

The following criteria were developed by student groups in Engineering and Design, Semester 2, 2001, and make a sound basis for both self and peer assessment of teamwork for this course. The scores are an indication of team performance at this stage, and are not for final marks.

Allow 20 minutes for the self-assessment and discussion. Each student fills in the personal assessment sheet by allocating themselves up to 5 points for each criterion. Each assessment sheet is then shared with the group, and individuals' scores may be readjusted by negotiation. A bonus of up to 2 points can be added for really excellent contribution. The lecturer or supervisor can move round the groups to see all the scores and discuss any issues.

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Teamwork assessment criteria:

Name:	
communication (everyone knows what's going on, listening, sharing ideas)	
responsibility for tasks (delegation and acceptance)	
time management (achieving goals, deadlines, timelines)	
cooperation (helping out with problems, agreeing, tolerance, encouraging)	
constructive criticism (positive attitude, no put downs)	
Bonus?	
Total	/25

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Exercise 3

Staff assessment

Set a task to be completed early in the life of the groups so that you can check that they're on the right track. The task could form part of the requirements for the major assignment or project presentation. For example, each group could make a brief presentation of:

- a project proposal
- a timeline of the project and its proposed outcomes
- a literature review
- a report outline with a brief set of minutes from team meetings, project discussions

A short presentation in which each member's contribution is visible will give you an idea of how the groups are performing, and an opportunity to make strategic changes if necessary.

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Exercise 4

Peer assessment

Use the criteria established by the groups for peer assessment. Allocate 5%–10% of total marks to the peer assessment. Average the students' marks for each other. If there are any major discrepancies, go back to the group and ask what is happening.

Estimating group members' contribution —Formative mid-stream assessment

(From Dr Gary Poole, AUTC Visiting Scholar for 2001, speaking at Flinders University, 30 November 2001)

	A	B	C	D	
A		X			
B					
C				X	
D		X			
High	4	3	2	1	Low

A estimates the proportion of work done by B, C and D; B estimates…etc. Results are pooled and discussed.

'A simple exercise that shows up the effects of any individual vendettas. Some groups filled this out in advance, but that became their contract and they fulfilled it', said Gary, using the term 'negotiated untruths'! Discussion of results with the students creates an opportunity to ask 'What happened here?' 'What do you want to do?'

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Exercise 5

Dummy run

Set a date for handing up a draft version of the project two weeks before it is due, and allocate a small percentage of the final marks to the draft. Return the draft with feedback for making improvements to the final version. Take this opportunity to speak with any groups that are not working well together, to ensure you will be able to assess all members satisfactorily.

CONTENTS

Evaluating

See the Evaluation section of Leap into ... Problem Based Learning.

What to evaluate

Ask yourself :

- Did the students achieve the planned learning objectives—both academic and process-related?
- Did the students engage in, and benefit from, the collaborative learning process?
- Was the students' time/task allocation appropriate?

How to evaluate

Standardised general feedback

The Centre for Learning and Professional Development (CLPD) provides an evaluation service for University staff. Information about this, including the Student Experience of Learning and Teaching (SELT), can be found on the CLPD web site.

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The SELT manual is a valuable resource for evaluation, even before you do a SELT evaluation. The questions can guide you as to questions you might ask students in class as part of ongoing evaluation.

The questions in the SELT manual relating to group work could be used in conjunction with relevant questions on problem-solving and project work.

Qualitative questionnaires

Qualitative questionnaires can give depth and detail on students' perceptions of what they have gained from the process and can indicate what areas might need to be improved or changed.

Again, students will need your feedback on the value of their involvement—to themselves and/or to future collaborative learning projects. A questionnaire developed by Ann Noble contains some questions you might ask—Survey of Collaborative Learning Experiences (PDF 39Kb).

Focus groups

See how Susan Shannon used focus groups as part of the evaluation of outcomes in a collaborative online learning project in Architecture (Achieving Active Learning).

Another example outlines a form of focus group evaluation of the tutor, developed for problem-based learning, which could be adapted for collaborative learning. See 'Examples from Evaluation' in Leap into … Problem-based Learning examples.

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Informal feedback

Collaborative learning lends itself to informal evaluation. Ask students for feedback during the project. Make the questions specific so that they will yield information you can act on. Don't ask for feedback if you can't act on it.

Ask students to submit written comments some time during a teaching session—the key points, the muddiest points, the questions left unanswered, or whatever will help you get a picture of the progress of the project, their group work and their understanding of the topic content.

Another informal feedback strategy, which also builds group and process skills, is to ask at the end of a session for responses from the group to a question such as:

> *What learning was clear today, and what would you like clarified?*

In the next session respond to their comments and provide support, help solve issues, and clarify any misunderstandings.

Example

A Leap case study by Derek Abbott (Department of Electrical and Electronic Engineering) is a guide for getting students to give feedback during a course, by email or in class.

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Provide feedback and propose action

When you have analysed feedback on group processes and outcomes, during and at the end of the project, feed this back to the whole class, or discuss it with the next cohort. This will reinforce that you value their feedback, especially if they can see you acting on it within the course. It is also a way of advancing the development of good group skills for future activities. After a course finishes you can do this by emailing all students.

When students expect you to do all the work (and skew your SELTs)...

The student evaluation of one lecturer in Engineering, who changed his lecture-based curriculum to one based on collaborative learning, suggested that many students saw him as shirking his duties as lecturer (see the Leap case study: A Logical Course of Teaching).

This is not an uncommon criticism. Your responses to feedback can range from 'educational' changes that address misunderstandings of process, to fundamental changes that address structure and content.

An educational response could be to preface the material with explanation or simply a rebuttal, as one lecturer offered:

> You will be required to assess your own participation in class.
> This is not a cop-out ...'
>
> (Nightingale et al 1996, p. 243[8]).

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A structural response, on the other hand, might be to allocate additional class time to explaining/discussing the rationale for the project's learning objectives and/or increasing training in the skills in question.

It's unwise to opt for an educational response if structural change is really what's required. To say merely 'This is not a cop out'—if students have a legitimate complaint about being left too much to their own devices, or being unprepared—may be a cop out, and threatens the credibility of the course.

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Leap into...

Collaborative Learning

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