

Conducting teaching and learning sessions

Introduction

This chapter focuses on issues related to the management of teaching/learning environments in higher education. It considers how effective environments may be achieved, making explicit that teaching can take many forms, and that the didactic approach is only one strategy. It reinforces the previous chapter by emphasising the need to consider class size when planning teaching and that teaching can be interactive with large groups as well as small ones. The chapter will also consider how adults learn and how these theories can be put into practice within a given session. The debate related to teaching and research in higher education and how they may be integrated into a teaching session will be considered. Research is key in all disciplines. This chapter highlights the need to see both teaching and research as integral to the learning environments of both lecturer and student.

In any teaching situation it is unlikely that the academic will have a heterogeneous group of students. It is therefore essential to understand the underlying principles of differentiated teaching and the implications this has for planning and preparation of teaching/learning material. Key to understanding differentiated learning is an appreciation that those who lecture may have different value systems about students' capabilities and aspirations to learn from the students themselves. This element needs to be recognised and addressed when teaching.

Teaching as an activity

Teaching occurs through a variety of mediums and contexts. These include lectures, tutorials, small and large group teaching, as well as lab sessions and other practically orientated learning. Key to all of these is the learning one wishes the students to engage in and what one expects students to gain from the learning experience. Choosing the appropriate learning environment requires planning, preparation and a clear notion of what is to be achieved from the session.

The lecture

We take lecturing in higher education so much for granted that we easily forget just how powerful its hold is.

(Ramsdens, 1992, p. 15)

Understanding the implications of the lecture as a teaching strategy

The lecture is the standard method for teaching large classes, yet research has shown that individuals learn better if they think about what they are learning and that they actively engage with the information they are being expected to learn. Comparisons between lecturers and other forms of teaching have demonstrated that where students are encouraged to discuss and participate learning is more effective (McKeachie *et al.*, 1990). In a very comprehensive review of the literature Bligh (1998) concluded that the lecture was as effective as other methods as a means of transmitting information, but not more so. However, the review also stated that lectures were less effective as a means of promoting thought, critical thinking and changing students' attitudes. Despite the research evidence, the lecture remains the main method of information delivery and teaching strategy employed in higher education. Bearing these comments in mind, it is essential to consider the advantages and disadvantages of the lecture as a method of instruction.

The main reason lectures are limited in achieving learning outcomes are related to the way individuals learn (cf. Chapter 3). Ramsden (1994, p. 167) suggests that 'active engagement, imaginative inquiry and the finding of a suitable level are all much more likely to occur if teaching methods that necessitate student activity, student problem-solving and questioning, asking, and co-operative learning are employed'. If this is the case one must ask why do we lecture, for on the whole the student plays a very passive role in a lecture and is rarely engaged in active learning. The lecture is perceived as the best way of imparting knowledge and covering all the information students apparently need to know. However, much of this information will be lost to students if they are passive, and effective learning will not happen. Students need to be engaged in deep learning if they are to develop and become autonomous, critical thinkers and learners.

Below is a summary of the advantages and disadvantages associated with lecturing.

Advantages

- They are an economical way of using staff time.
- Lecturers can be inspirational.
- Some lectures can save students' time by summarising a field of study.
- They can provide an up-to-date view of the subject.
- They are a good means of introducing a subject.
- Lectures provide a means of pacing a student's rate of working.

Disadvantages

- Lectures are relatively ineffective in stimulating thought.
- Lectures are relatively ineffective in stimulating changing attitudes.
- Lectures are less popular with students than other methods.
- Personal and social adjustments should not normally be the major objective of lectures.

It is generally agreed that an uninterrupted fifty-minute lecture is a poor method of learning; there is usually no student participation, no rehearsal of what is learned and no feedback to the lecturer. There is a sharp decline in student performance (expressed as the ability to recall information) as the lecturer proceeds. For example, in one study students were able to recall 70 per cent of the content of the first ten minutes of a lecture but could only recall 20 per cent of the last ten minutes (Bligh, 1998; Brown and Atkins, 1988).

If there is not an immediate application of what is imparted during a lecture then over a period of a few days there is a rapid drop in the percentage of material retained. Other factors can also aid the remembering of information given in a lecture. These include the meaningfulness of what is taught, the logical argument of presented subject matter, repetition to consolidate learning, and feedback to students on their performance in (for example) written exercises. Students appear to like to know the aims of a course of lectures. The availability of objectives is found to facilitate learning in certain instances, although the generalisability of these instances is not easily determined.

The lecturer

Students have very clear expectations of lecturers, particularly in the role of giving a lecture. High on their list is:

Clarity of presentation

- Presents material clearly and logically.
- Enables students to understand the basic principles of the subject.
- Can be clearly heard.
- Makes material intelligibly meaningful.
- Adequately covers the ground in the lecture course.
- Maintains continuity in the course.
- Adopts an appropriate pace in lectures.

Scholarship

- Shows an expert knowledge of subject.
- Illustrates practical applications of the theory of subject.
- Refers to latest developments in subject.
- Makes links between theory and practice.

Willingness to develop students

- Readily considers students' viewpoints.
- Allows questions during lectures.
- Stimulates students to think independently and critically.

The above elements are used as an illustration of what students find facilitative and non-facilitative in lectures. It is essential to consider student learning and engagement when constructing and delivering a lecture.

Points for consideration

The following points are the most commonly cited reasons for student dissatisfaction with lectures. Consider these points and ways in which they may be avoided.

- Lecturer incoherent.
- Lecturer gave too much or too little detail and failed to emphasise main points.
- Lecturer failed to come down to students' level.
- Lecturer spoke badly.
- It was very difficult for students to take notes.
- Lecturer was dull or uninspiring because he/she merely read notes.
- Lecturer's writing and diagrams were too small and inappropriate.

Preparing for a lecture

The following questions should be answered before preparing for a lecture.

- What aims do I have in mind? (See Chapter 5)
- Is the lecture method the best teaching technique for achieving these aims?
- What kind of lecture should be given?
- What generalisations do I wish to convey?
- How can I best organise the material?
- What audio-visual aids will be useful?
- What student preparation and follow-up activities are planned?

If, as research shows, that student achievement drops dramatically as the lecture proceeds, ways should be found to re-motivate the students throughout the lecture. This can be done in a variety of ways, including:

- Asking questions throughout the lecture.
- Placing students in small groups to discuss a given problem for a short period of time.
- Encouraging student problem solving on board.
- Actively engaging students throughout the lecture.

The above suggestions are also a way by which students can immediately apply the knowledge they are being taught. This will enhance the retention rate of knowledge for the students.

Types of lecture

The lecture can be and is often thought of as a single entity. However, this is not the case, and it is helpful to planning if the lecture can be seen as having several alternative approaches. Lectures can have different foci; these include:

- *Information and facts:* The focus here is on the giving of information in either formal or informal ways. Students tend to be more passive, but lecturers can make information giving stimulating with effort and preparation.
- *Problem solving:* The problem-centred lecture consists of the lecturer asking a question or posing a problem and then presenting relevant information in the arguments. The focus of the lecture is the problem.
- *Activity:* The activity approach lecture is one where students are actively involved by actually conducting some form of activity during the course of the lecture, such as trying to write a short poem in a particular style,

taking part in a demonstration, role play or simulation of a particular phenomenon.

- *Issue:* The main focus here is that a lecture concentrates on a significant issue. All tasks, activities or problems are related to that issue. The aim is to make students aware of the issues at hand through a variety of perspectives.

Organising the lecture

If the lecture is the best method of delivery to achieve the aims that you have in mind, and when the type of presentation has been decided upon, the next stage is to organise the material. This can be done in four stages.

- 1 Write down what you hope to achieve as a result of the lecture.
- 2 Write down the key points (i.e. the major generalisations).
- 3 Arrange the key points into the most logical order of presentation.
- 4 Make your lecture cohesive for the students.

Lecturers are most effective when the lecturer uses brief notes consisting of headings and sub-headings rather than full notes which are read or copied on to a board, overhead projector screen or computer screen. If notes are planned and presented in a logical order it makes student learning more engaging. However, part of organising the lecture must also concern itself with the resources the students are going to be given in relation to the lecture. For example, are the students going to be given handouts? If so what will the handouts consist of?

It is important to consider the learning that is expected from the lecture. Thus the extra material given to the students should not only consolidate the lecture but extend the interaction with the knowledge given. Handouts might contain a list of learning objectives, a summary of the lecture, useful references, diagrams, and questions to be answered or further researched. Handouts are not only an extension of the lecture but can be seen to be another way of engaging students in autonomous learning.

Delivering a lecture

Planning and preparation by lecturers has been stressed as a means to successful delivery of lectures. When delivering the lecture bear in mind the following points:

- Do not include too much material in the lecture.
- Organise the lecture so that students can follow your progress through the concepts, problems or issues being addressed in the lecture. This can be achieved by subdividing the topic under a number of main headings

and presenting the headings on an OHP or PowerPoint presentation at the start of the lecture. This will facilitate the students' appreciation of the structure and framework of the overall lecture.

- Do not work too quickly. Remember that what comes easily to you may be the first time the students have encountered the problems or issues you are introducing or discussing. A major failure of the lecture is the assumption that students can follow and keep up with the lecturer. It is the responsibility of the lecturer to ensure that learning is taking place.
- Use your lecture notes as reminders; do not dictate them to the students, as this is a waste of time. It is better to photocopy notes than dictate. Use the time to explain, expand and engage the students in the information you are trying to impart.
- Appear confident when talking to your students. Look directly at them rather than the ceiling, etc. and walk around the lecture room. Do not stay behind the lectern or desk as this appears defensive to the students.
- Constantly try to assess how the students are responding to your lecture and react accordingly. This may well mean that you change direction in the lecture. Ask the students if there are points that need clarification, etc. This will help gain the support and engagement of the students.

Although there are no hard and fast rules that guide a good, well-planned and delivered lecture, the following general plan is worth considering:

- A good introduction to the lecture, specifying aims and learning outcomes to be achieved.
- Distribution of handouts.
- An overview of the lecture (important generalisations are given).
- Small breaks revolving around specific activities (discussion with other students concerning a particular problem, or individualised problem-solving task, etc.).
- A summary of all salient points, and general points revised and reinforced.

Points for consideration

Using the above suggestions, consider and create a framework for lecture design based on your discipline. The purpose of the framework is to help speed the planning and preparation of your lectures.

Below are some suggestions for making lecturing more effective. These should help particularly if you bear in mind the following quote from Professor Gibbons (electrical engineering):

When you start teaching and you're dealing with undergraduates, and you look out there and you see that confused look, the chances are that the context isn't there. Because if the context is there, [students] can follow all kinds of arguments, if they see roughly where you're going.

(p. 131)

Checklist for effective lecturing

Be prepared

- Outline clear objectives of your lecture. An objective should not be 'to cover material'. An objective is why the material is important.
- Develop an outline; create effective visuals for the main points.
- Limit the main points in a lecture to between three and five.
- Do not use lecture time to reiterate readings. Refer to them and highlight key points.
- Plan for diverse learners. Use verbal, visual and physical (hands-on exercises, simulations) approaches.
- If you are nervous, write out the first two or three minutes of the lecture.

Engage your audience

- Focus attention early on using quotes, a snappy visual, an anecdote, or other appropriate material relevant to the topic.
- Share your outline. Emphasise your objectives and key points in the beginning, as you get to them and as a summary at the end.
- Integrate visuals, multi-media, discussion and small group techniques.
- Link information to students' prior knowledge (i.e. common experiences or previous course work).
- Exhibit enthusiasm for the topic and information. Remember that you are modelling your discipline.
- Give students time to think, and genuine opportunities to respond.

Get feedback

- Observe students' non-verbal communication: note taking, response to questions, eye contact, seating patterns, response to humour. Are they 'with' you?
- Ask students to respond in one or two sentences to the three following questions:

- 1 What stood out as most important in today's lecture?
- 2 What are you confused about?
- 3 Ask students for their comments/suggestions.

Suggestions from a variety of disciplines to help formulate better lectures

- *English and modern literature*: Emphasise explicit recollection transition and reinforcement from previous lecture. At the start of a session ask students to summarise the main points recently covered. Then make explicit connections between that summary and the new lecture.
- *Chemistry*: Incorporate demonstrations into your lectures. This will lend variety and arouse curiosity in a way that verbal communication alone cannot. For example, colloid solutions can be introduced by combining water and corn starch in certain proportions. What results is a substance that vividly challenges notions of what is a liquid and what is a solid.
- *Computer science and linguistics*: First, present complex ideas in a simplified form, stripped of qualifications and conditions. Once students have this general idea, their minds will be able to more effectively cope with all the demands and details of qualifiers.
- *History*: Students' motivation can be greatly increased if lectures are made more informal and loosely organised, so that discussion is included. This gives students responsibility to raise questions and be involved in their learning. In this type of approach the conclusion of the lecture is very important. It should have a punchy, well-structured conclusion. This will give the students a feeling of a memorable session.
- *Material science and engineering*: Preparation is key here as it is very important to keep students motivated and involved. Ask yourself: What is the fundamental problem or issue that will be approached and tackled? Devise several methods for solving one problem or question. This shows students that problem solving is flexible and has several stages of development.

Summary of points related to lectures

Students will only learn when they are actively engaged in their learning. For the lecture to succeed students need to see not only the relevance of what is being imparted but also the reason for having to learn the information being given. For this to happen they need direction and need to understand individual points and the lecture as a whole. Students need to expend their energy efficiently, and a good, well-structured and co-ordinated lecture is essential for effective student learning to occur. Cohesiveness between parts of the lecture is key. Do not give students endless textbook material. This is both a dry and ineffective way of teaching students, who can obtain that material themselves from references. Add material by making your own information pack for them. This will also motivate students to attend and take part in sessions. Students will

remember points much better if they are connected and referenced to other sources of learning.

Using small groups as a teaching strategy

In nearly every text related to teaching and learning in higher education, small group teaching raises the question, 'What is meant by a small group?' (see e.g. Abercrombie, 1970; Bligh, 1986; Ramsden, 1992). The main reason for this discussion is historical in that small group work was seen to be an offshoot of the main teaching method of the lecturer. Advocacy of teaching in small groups cannot be seen as an attack upon the lecture method but as a significant alternative for student learning. This section is concerned with the nature of the teacher-student relationship in small groups, whatever that group is called. The optimum size is between ten and twenty students. Larger classes may also be called seminars, but the types of discussions and activities that might be engaged in by the students will be limited by the size of the group. Abercrombie (1993) suggests that 'the term group means a number of people who are in face-to-face contact, so that each of them can interact with all others' (p. 70). She goes on to say,

A class cannot be a group if members are too large for each member to be able to interact with each of the others. But nor is a small class necessarily a group, for while a class is in session the teacher may be the only person who interacts with each of all the others, and with whom the others interact.

(p. 70)

Group teaching involves the teacher in deliberately removing him or herself from being the focus of attention. The teacher becomes a facilitator of learning by encouraging students to interact among themselves. If group work is to be successful the size of the group will be a significant factor and depend on its function.

Skill in group teaching needs to be cultivated, in the same way as lecturing or tutoring. These skills may be guided by some general principles about group situations. These include the following:

- *The teacher assumes a different role*: here the teacher must emancipate the students from their dependence on the teacher as the source of knowledge and competence, and to encourage them to be autonomous. What is distinctive here from other forms of higher education teaching is the method by which the teacher encourages autonomy and intellectual growth. It is not dependent on didactic teaching but on encouraging students to interact and learn from each other. This does not mean the teacher takes a back seat; on the contrary, it requires considerable skill

to facilitate students to engage in discussion and creative thinking. Stenhouse (1972; p. 98) argues:

Successful participant small groups in education are likely to be formal rather than informal. They call for rules and conventions. Many seminars fail because tutors see them as informal occasions. . . . The teacher will be most effective if he defines his role and thereby makes his or her use of authority also rule-governed, and his or her area of initiative clear. Small group work is not forwarded by the renunciation of authority, but by its definition. . . . Group rules and teaching roles need to be logically consonant with the demands of an explicit task . . . and need to take account of the psychology of groups. The problem of developing satisfactory small group work depends as much on student training as teacher training.

- *The physical environment in which a group meets:* The importance of face-to-face contact in improving communication cannot be overestimated. Physical proximity is very important in human communication. In face-to-face contact control of intercourse by eye movements is possible (Argyle, 1967). Observing body language and movement by individuals allows the teacher to identify those students feeling awkward or shy or dominating a situation. These human forms of communication can be best detected in a physical environment that is conducive to making the student feel part of the group. If the teacher remains behind a lectern or sits in a position within the room that dictates authority, it is less likely that a good group dynamic will develop. Setting a room up in a horseshoe shape or round table format encourages participation, as no one person – teacher included – dominates the structure in terms of physical presence. Geographical site is also important. The social climate that the group may experience will differ according to where it meets. A class set in a tutor's room or a classroom can affect the interactions within that group.
- *Being aware of student expectations of group work:* The expectations students bring to group work will affect their behaviour, participation and learning outcomes. Many students expect the teacher/tutor to continue in their authoritative role, to which they are accustomed. If students are not explicitly told about the aims and objectives of group work it is possible that hostility and rejection of the method can occur. If you want student learning outcomes to be achieved through group work it is important to construct a plan. To assist in that process consider the following six points

- 1 How much freedom should you offer students within the group, either for expressing opinions or in the manner in which they express them?

- 2 How will you maintain a balance between being too controlling and being too permissive?
- 3 How will you ensure that the time spent in group work will be used constructively?
- 4 How will you aim to draw all members of the group into the discussion or other activities you have designed for the group to engage in?
- 5 What techniques will you use to elicit questions from the group, so that there are not too many silent periods?
- 6 How will you motivate the group and sustain that motivation without talking too much and dominating the group?

Some of the functions of small group work can be categorised into three areas: lecturer–small group interaction; lecturer–student interaction; student–small group interaction.

Lecturer–small group interaction

Within a normal lecture students do not usually have the ‘freedom of interruption’; this is one of the perceived weaknesses of the lecture. The lecturer cannot assume a full understanding of all he or she has said and he or she does not know what the students are thinking while the lecture is in progress, unless they are interrupted and questioned. The same argument can be put forward with regard to what extra knowledge the students might wish to know that was not covered during the lecture. If the lecture is within a small group, the teaching strategy and approach to student interaction can be perceived differently. For this to occur the tutor has to be aware of two general points:

- 1 He or she must provide the opportunity for free discussion with full participation by all members of the group.
- 2 The development of a special type of relationship between the tutor and his or her students.

To facilitate the development of lecturer–small group interaction both students and tutors have to appreciate that they have equal rights to participate, and any of them may initiate discussion and criticism. This may happen in a number of ways, including the interruption of the lecture or discussion by questioning. Each student is actively encouraged to develop critical thinking, using his or her own judgement and methods of reasoning. Students should also be enabled to learn from each other and not rely on the ‘expert’ in the form of the tutor/lecturer.

Lecturer-student interaction

This approach applies to areas such as problem solving within a lecture or small group lecture/seminar. The objectives here are to promote the application of new principles and to appreciate some of the problems faced by the group in solving the problem. Here the tutor can 'abdicate' (albeit temporarily) his status as an authority, and take on the role of an interpreter and clarifier of issues being discussed and engaged in within the group. The tutor's superior knowledge and experience allows him or her to ask the right questions to provoke thought or to redirect students in their problem-solving activities. This method allows the tutor to observe the students and to get a feel for what they know or don't know, understand or don't understand, and need to know in the future.

The process of observation and redirected learning of the students allows the tutor to encourage feedback of the students' responses to the problems and possible solutions. The clarification of subject matter, and the discussion of alternative solutions to problems, whether given by other students or by the tutor, are especially valuable aspects of the learning process of small group work where the teaching strategy is based on lecture-student interaction.

Student-small group interaction

The main aim of this type of small group work is to enable students to solve problems and learn by working solely with other students. The principal objective is for students to become proficient in the art of problem solving, decision making, evaluating and applying principles through free discussion, team work and creative application of knowledge. Group practical activities in the sciences, problem solving in mathematics or project work in almost any discipline could be served by student-small group interaction. Simulation exercises are another type of activity that falls within student - small group interaction. These may include micro-teaching, computer simulations of medical procedures, examining virtual archaeological sites, or viewing video-tapes of art or drama for critical appraisal. The role of the tutor is to facilitate learning by making sure the group can work together and that the environment in which they have to work is conducive to the tasks set. A significant aspect of this type of group work is that students often express some of their attitudes towards their work and their preferred ways of learning. This can give both the student and the tutor more self-confidence in the way learning tasks are approached (see Table 6.1).

Table 6.1 Summary of small group teaching: a classification

Teaching method	Objectives	Teacher's role	Leader	Time	Size of group	Size of class
Individualised task	<ul style="list-style-type: none"> • Involvement by all • Problem solving 	<ul style="list-style-type: none"> • Sets of tasks • Poses problems 	<ul style="list-style-type: none"> • None 	1-4 min	1	Any
Buzz groups	<ul style="list-style-type: none"> • Encouraging reticent students • Group cohesion • Consolidate memory by 'rehearsal' of facts • Learn terminology by use • Feedback • Training in discussion techniques 	<ul style="list-style-type: none"> • Set tasks • Ensure formation of groups • Circulate to help groups, meet students, get feedback • Controls reporting back 	<ul style="list-style-type: none"> • None • A 'secretary' may record decisions or answers to problems 	2-15 min	2-6 No more than 3 in one row	6 or more
Seminar	<ul style="list-style-type: none"> • Critical thinking • Ability to present in argument • Thought at all levels 	<ul style="list-style-type: none"> • Usually chooses topic • Preparation of arguments on key issues • Listening 	<ul style="list-style-type: none"> • Teacher 	Over 45 min	Same as group	3-14 Only more if teacher is skilled and/or students are mature
Tutorial	<ul style="list-style-type: none"> • Individual development of student thought, especially at higher levels • Ask questions • Give reasons • Appreciation of other perspectives 	<ul style="list-style-type: none"> • Listening • Encouraging student questions of himself or herself • Sympathy and praise 	<ul style="list-style-type: none"> • Student or none 	Indefinite	Same as group	Same as group

Points for consideration

Using the above categorisations of small group teaching create a framework for small group teaching based on your discipline. The purpose of the framework is to help speed the planning and preparation of your work with small groups.

The tutorial

A tutorial usually refers to a meeting of an hour or so between a tutor and a few individual students – usually no more than three students – and frequently on a one-to-one basis. The tutorial is a fundamental teaching strategy in higher education because the student, like an apprentice, learns his or her trade by direct contact with a practitioner. Increasingly students coming to university straight from school are used to absorbing information rather than trying to apply and understand that information in a systematic way. Tutorials are a form of teaching that meets the individual needs of students, by helping them understand how their discipline is constructed, the problems associated with the discipline and how they may be investigated. Tutorials personalise the student's learning; they allow the student to develop a relationship with the tutor. This relationship is very important to the development of the student's knowledge base and learning, as the tutor will often be the only academic whom they can directly approach and ask questions. Personal teaching is of great importance to the student's motivation, self-esteem and morale.

Within higher education, reading, writing and discussion are equally important in the development of the autonomous, critical thinking individual as is the attendance of lectures. The basis of nearly all assessments is written work based on the application of knowledge gained from reading, listening and discussion. Writing is the basis of thinking, which requires the student to order his or her thoughts and express them in a way that makes sense to others. The tutorial has a key role to play in this development process for the student. It is the only opportunity for the student to ask individualised questions that can help his or her development in the discipline.

The art of a good tutorial

There are no set rules for conducting tutorials, and as you become more experienced you will find an operational mode that suits both you and your students. However, there are certain issues and rules that you will need to address in the first instance. These include the number of tutorials you

will give and what the student entitlement is. Where will you conduct the tutorial, will the tutorial be small group or individual and how will you conduct the tutorial? It is good practice to set tutorial rules for students. Students like to know whether you want to see their work prior to the tutorial, or whether you expect the student to talk through their work and for you to comment or give guidance as the tutorial progresses. These are key points that have to be made explicit to the student.

The extent to which tutors analyse a student's work or comment upon it as a way of eliciting discussion from the student is a personal choice and will develop as the relationship between the student and tutor grows. The main objectives for the tutor should be to ensure that the student:

- Has produced a properly organised account of the subject.
- Understands what he or she has written and that the student has only written what he or she believes to be an accurate support of the argument.
- Leaves with his or her misunderstandings or incorrect perceptions rectified.
- Is encouraged to read further, research the area from a variety of perspectives appropriate to the topic and gain a deep understanding of the issues associated with the problems under investigation.
- Knows the date, time and expectations of the next tutorial.

Points for consideration

Before arranging your tutorials consider the following statements:

- Establishing what you expect from your students during a tutorial.
- Deciding how you want to conduct your tutorials.
- Establishing what you feel the students should gain from the tutorial.
- Establishing ground rules for tutorials so that the students have clear expectations from the tutorial.
- Do you expect students to send you their work prior to the tutorial or will they bring the work with them?

The content of a tutorial

The above task should facilitate how the tutorial will proceed and what the content of the tutorial should be. However, it is equally important to consider the wider implications of tutorial content. A significant question that should be asked is: How is the tutorial related to the lectures the student is studying? Tutorials may be designed to reinforce information given during

the lecture, and to extend that information to areas of application such as problem solving or simulations or interpretations of the information given. The responsibility of tutorial content is often delegated to the tutor. It is therefore very important to give serious thought to tutorial content, strategy and achievable learning outcomes from the tutorial process.

Points for consideration

Before arranging your tutorials consider the following questions:

- What is the aim of your tutorial?
- What do you expect your students to learn from your tutorial?
- How will you ensure that the content of your tutorial will achieve the learning outcomes you have set for the tutorial?
- How will you select the content of your tutorial and why have you chosen the content?

The seminar

Seminars for undergraduates should be small enough for realistic discussion in which everyone can find opportunity to take part. Ideally a seminar series should allow all students to present a paper during the series. A seminar is not effective unless there is a common degree of expert knowledge enjoyed by its members. The tutor's role in the seminar is to ensure that a corpus of expert knowledge is available. The seminar offers two elements to teaching and learning. The first relates to the regular meeting of the same group of students working with one another on a group of topics as a continuing syllabus; the second relates to the less frequent meetings that bring students together with senior scholars and researchers for particular occasions. Both types of seminar offer students the opportunity to engage with issues and problems related to their subject area. Each seminar presents different opportunities to students as well. These include the chance to question experts and researchers at the cutting edge of knowledge in their field, and offers the student an opportunity to question fellow students' understanding of similar issues and problems. The role of the tutor is to reflect on the learning outcomes that are desired for the students engaging in the seminar process. From these reflections the tutor should be able to identify, plan and organise seminars that help achieve the stated learning outcomes for the students.

When students participate in seminars they should have a clear understanding of the nature of the learning they are to engage in. These are associated with acquiring skills in communication, thinking and writing rather than the transmission of knowledge.

The seminar should provide the following:

- 1 Practice in preparing written work for discussion.
- 2 Practice in discussion.
- 3 Practice in intelligent and unprejudiced scepticism.
- 4 Exercise in the use of purposeful discussion to assess new information and theories.
- 5 Establish student confidence in the art of argument.

Points for consideration

Before arranging a series of seminars for your students, consider the following questions:

- What is the aim of your seminar series or individual seminar?
- What do you expect your students to learn from the seminars?
- How will you ensure that the content of the seminars will achieve the learning outcomes you have set for the tutorial?
- How will you select the content of the seminars and why have you chosen the content?

Teaching with technology

The computer is dramatically changing the way teaching can be perceived, prepared for and delivered. Searching computerised databases, using statistical packages to analyse data, using the Web for information seeking and research and e-mail have become commonplace in the teaching/learning environment. Yet when many new and experienced lecturers step into the lecture room they either ignore technology or rely on technology they are very familiar with, such as the OHP, the blackboard and chalk, textbooks, etc.

For some, the use of IT in teaching and learning is still daunting; however, we cannot ignore the fact that many students are very IT literate and expect technology to be used in teaching and learning. Technology allows teachers to customise their teaching and learning activities to better fit the needs of students. Technology also encourages students to move beyond the lecture theatre to expand their learning and learning-associated activities. A good example here is from English Literature, where students study Shakespeare's plays. Many students have seen some of the plays they have studied. If a CD-Rom with clips of the plays could be accessed, students could interrogate the clips, see the various performances and begin to interpret the plays from a variety of perspectives. Students could be encouraged to conduct such activities as self-directed study, the results of which can be brought to the next lecture or teaching session for discussion and further exploration.

In anthropology 'virtual-field sights' can be used as a means of interrogating extensive data collected from studies both past and present. This allows students to view archaeological sights and artefacts through virtual reality panoramas, thus giving them a significantly enhanced learning environment. Again, students can interrogate the CD-Rom or database as self-directed study and the results may be used in a following session with the lecturer, having the master disk or database live on the day to help discussion and investigation.

In mechanical engineering and science-based disciplines technology can be used to enhance learning through simulations and virtual laboratories, thus allowing students to conduct possibly dangerous experiments without fear or danger to themselves.

The most important aspect of teaching with technology is understanding why you are going to use the technology and to ask the question: Is it the best and most effective way of teaching the topic or problem? The essential principles of using technology for teaching must start with the pedagogical aims and to determine what you are trying to accomplish with your students. There is no point using technology just for the sake of using technology. However, if your aims and learning outcomes can be better achieved through using technology then it is essential it is used, and used effectively, within the teaching session.

As demonstrated in the above examples, technology can bring to reality what verbal communication may often fail to demonstrate. The use of virtual reality in anthropology or history sessions can be invaluable to learning, as are seeing several different performances or clips of the same Shakespeare play for learning about literary interpretation. While technology may be able to facilitate your pedagogical purposes of achieving your aims and learning outcomes, it should not replace your active involvement with the students and the traditional activities that occur in a lecture or teaching session.

Technology is a very effective tool to be used outside of the formal teaching session but inclusive of it. Students should be encouraged to use technologies to enhance and extend their learning through self-directed study. However, the success of such pedagogic practice relies on the teacher following up the activities in teaching sessions and ensuring that students complete the extra tasks.

As with all teaching preparation, technological courseware also needs thought, not only in its form but in the purpose for its use. Technological course material must make students think about and become aware of the learning process they are engaged in. Technological courseware must have the basic teaching principles (discussed in Chapter 2) in mind and especially emphasise the need for students to actively engage with the material and their own learning.

An example here is taken from mathematics, science and technology

education (Berkeley UCL). They suggest that thoughtful technological courseware, like thoughtful teaching, can achieve three important goals. It can:

- 1 Encourage students to think like experts, including getting them to understand problem-solving processes and to critique solutions to problems.
- 2 Make thinking visible, so that the process of learning is emphasised, not just the result.
- 3 Scaffold knowledge, building on what students already know, so that they can understand and form general principles from new information.

In real terms this can mean designing courseware that encourages students to make predictions which can then be tested, whether these are real or virtual experiments. Students can then build their knowledge systematically in their discipline.

Using electronic communication for teaching

Electronic communication allows an immediate response to student queries outside of formal teaching sessions. Such communication can enhance student learning, as students can ask individualised questions and not wait for the next teaching session. When the significance of individualised learning is accepted it presents the lecturer with a very powerful tool for enhancing learning. Due to the asynchronous nature of most electronic tools in use in higher education, students can work at their own pace and level of knowledge. Thus e-mail allows students to ask questions that are of particular relevance to their own learning.

Web-based discussion forums and electronic mailing lists are also significant tools that enhance student participation and individualised learning. Such tools encourage interaction with peers and tutors. Discussions that occur between students have great richness and give a different perspective to the issues or problems being tackled by the formal learning situation.

Online discussion gives shy or quiet students the opportunity to have their say and to participate in discussions they might otherwise have not contributed to.

Taking the plunge and introducing technology into your teaching

If you have decided to include technology in your pedagogic practice it is important that you ascertain what you will expect the students to achieve by using the technology and how best your choice of learning outcomes are to be achieved. Relating the aims and learning outcomes to the learning activity are key aspects for consideration.

When you have identified the learning outcomes to be achieved you can then relate them to the type of learning activity in which the student might engage in order to meet those outcomes. Table 6.2 illustrates the selection process.

Selecting an appropriate technological method

Table 6.3 illustrates the need to consider teaching methods and student learning activities. Many teaching strategies are a synthesis of several methods. The same is true of using technological tools; for example, some technological packages are tutorials, some are simulations and some are role plays or case studies, but each will have a variety of ways in which students will interact with the software.

Points for consideration

The above sections have illustrated the way some of the new technologies can be integrated into teaching and learning. Using your experience of your discipline and courses you have to teach, consider the following questions in conjunction to your practice.

- Could you introduce IT into your teaching?
- Which aspects of IT best fit your discipline and style of teaching?
- How do your course aims and learning outcomes match the technology you have chosen?
- How familiar are you with software packages in your discipline area that can enhance student motivation and participation?

Summary points for consideration

- It is essential to understand that good teaching requires more than the transference of teaching material to a technological format.
- Greater reliance on technology does not necessarily achieve your aims and learning outcomes.
- Technology can be used to improve the quality of instruction.
- Technology can increase motivation of students, as well as encourage quiet and shy individuals to participate in online discussion.
- Technology can offer virtual environments to enhance learning.
- Technology is not cheap, nor is it always reliable; therefore make sure it is within the module budget.

Table 6.2 The selection process

Step	Guideline	Product
1 State aims	What are students expected to achieve in terms of: <ul style="list-style-type: none"> • knowledge • intellectual skills • practical skills • attitudes 	Educational aims
2 Related aims to learning outcomes	How may aims be best achieved: <ul style="list-style-type: none"> • by students observing • by students listening • by students reading • by students doing 	Learning activity appropriate to the aims
3 Selected method	Which teaching/learning method allows for the learning activities appropriate to the aim?	Appropriate method
4 Select medium	Identify media relevant to selected method	Appropriate medium
5 Select equipment or tool and materials	What equipment, tools and materials are appropriate for the learning experience	Appropriate technology

Table 6.3 Examples of teaching methods and technological applicability

Methods	Major student learning activity	Technology
Demonstration and simulation	Observation/manipulation situations	Tools that allow observation followed by virtual application
Lecture/acting	Listening and interpretation	Video clips/CD-ROM, virtual reality
Indirect discourse	Writing, reading critical thinking, question posing	E-mail, online discussion, web-based discussion forums
Research and information gathering	Research skills	Web directories, database
Tutorial	Specific predetermined skill	Tutorial-based exercise
Data interrogation	Application of data	Statistical packages, data interpreters

Discussion as a way of teaching and learning

Brookfield (1991) suggests that there are fifteen benefits to using discussion as a teaching strategy in higher education. Some of these points include:

- Helping students explore a diversity of perspectives.
- Increasing students' awareness of and tolerance for ambiguity or complexity.
- Helping students recognise and investigate their assumptions.
- Increasing intellectual agility.
- Helping students develop collaborative habits.
- Helping students develop skills of synthesis and integration.

(p. 17)

'Discussion is one of the most effective ways to make students aware of the range of interpretations that are possible in an area of intellectual inquiry' (ibid., p. 18). Essentially, discussion is a key element of student learning. Discussion promotes active participation and helps to develop tolerance and collaborative forms of working. However, discussion is not always easy to instigate, or, once instigated, to keep under control. So how can lecturers increase the quantity and ensure the quality of discussion as a means of student learning?

Framing discussion sessions

As a discussion leader the lecturer is dependent on the group: its level of preparation, its enthusiasm, and its willingness to participate. Good planning is essential to any discussion group. Like the preparation of any teaching and learning session it is important to establish your aims and objectives/ learning outcomes for your discussion session. You should consider the following questions when planning for discussion:

- Do you want the students to apply newly learned skills?
- Do you want the students to mull over new subject matter?
- Do you want the students to learn to analyse arguments critically?
- Do you want the students to see problems?
- Do you want the students to become motivated to do research?

These questions are not mutually exclusive, but they require different types of leadership on the part of the tutor or lecturer and different responses on the part of the students. You may wish to be directive throughout the discussion or you may wish to be non-directive and allow the students to determine the flow of the discussion. Which ever route is chosen, you will have to think about the nature of the questions you will ask to get the discussion started.

Asking questions

Prior to a discussion session it may be worth considering the nature of the material you will give students to ensure that the discussion covers the areas or topic you wish the students to learn about. Distributing study questions prior to the session demonstrates not only your own interest but helps the students to focus their preparations for the discussion sessions.

The types of questions you use to start a discussion session vary in effectiveness and can considerably influence the success of the session. For this reason it is important to spend some time preparing the types of questions you think you should use. It is useful to think of these in order of difficulty or complexity. Start with easily answered questions to build confidence, then progress to more challenging and finally more complex questions. A pattern you may wish to consider is exemplified below:

- Make your starting point work with which the student is familiar or feels comfortable with. This might be a series of questions based on common sense or from basic information gained from the subject area.
- Use questions that encourage students to explain relationships between the units of information they have been given with a view to forming general concepts.
- Use questions that encourage students to apply concepts and principles they have learned to new data and different situations.

Increasing the difficulty and complexity of questions requires planning and a deep understanding of the discipline area you are trying to promote. Below is an example taken from a discussion session in philosophy, based on Plato's *Republic*. The questioning fell into three sections of difficulty. The first related to questions of understanding, the second to exploring relationships between concepts, and the third to application of knowledge.

Section 1

You might begin by asking questions such as:

- What are the basic components of Plato's ideal state?
- What are the characteristics of a good ruler?
- Why does Plato ban poetry from his republic?

Section 2

Having established that the students understand the material, questions should become more probing and aim at the students drawing connections and making relationships between the concepts; for example:

- How does the allegory of the cave fit into the rest of the work?
- What criticisms of Athenian society is Plato making?

Section 3

This involves asking students questions that make them apply their knowledge; for example:

- Is Plato's republic a desirable place to live?
- How would Plato criticise a contemporary British university?

The art of structuring questions is only half the battle in engaging students in discussion. The way you ask the questions and who you ask them to are equally important, and will influence the effectiveness of the discussion and ultimately the students' learning. Group dynamics are very important to making discussion sessions operational.

Points for consideration

You may wish to consider the following points prior to your discussion session:

- Decide whether to ask questions of specific individuals in the group or the whole group.
- Consider how much time you would like to leave between questions.
- Consider how long to leave a silence before answering the question yourself.
- Structure your questions so that they do not invite a programmed response.

Increasing participation

A successful discussion leader is one who formulates good questions and considers how best to use these questions in a discussion session. However, despite good planning and preparation, there still remains the task of making sure that participation by all students occurs. For this to happen the following points may help shape the structuring of your session:

- 1 Encourage participation by all students in the group.
- 2 Keep the conversation flowing by encouraging the students to talk to each other, not just to you.

- 3 Try to help the students in their articulation of complex issues by giving insight into the material under discussion.
- 4 Think of interventions that encourage further investigation into the topic. These may be questions such as:
 - Can you put that another way?
 - Can you give an example of your description?
 - What do you mean by that?

Or body language such as:

- Circular hand movements that indicate more is required.
- Smiling showing approval and encouragement.
- Showing active listening on your behalf rather than continual interjection.

These elements are suggestions to increase participation. The one key element to remember is: *Do not dominate the discussion.*

Sustaining discussion

Once a discussion has taken off and is focused, students will start discussions amongst themselves. Here you have to become a moderator, mediator and a summariser of information. Creating a good climate for a discussion group is essential. This will be greatly assisted if you are as relaxed and unselfconscious as possible. Enjoy the situation and watch your students flourish through guided discussion. Students enjoy the spontaneity and excitement of learning through discussion. Student opinions have to be respected and shown respect (even if you think they are outlandish). After all, discussion is a joint learning exercise. Students learn from each other as well as the lecturer, but the lecturer also learns from his or her students.

Summary of discussion as a way of teaching and learning

The main point to remember when planning teaching and learning sessions that involve discussion is '*Facilitate, don't dominate*'.

Prepare well

- Consider your objectives/learning outcomes for the discussion. What do you hope to accomplish?
- What topics or subject areas would you like discussed and which areas would you consider being tangential?
- Ensure your students have enough previous knowledge so that a constructive discussion can take place.

- Use discussion sessions to help students make connections and relationships with concepts and material they have engaged with.
- Develop your questions in such a way that they will facilitate discussion and prompt critical thinking.

Facilitate discussion

- Develop and provide guidelines for participation in discussion sessions. Discuss these with students, stick to them and enforce them during the session.
- Use open-ended questions, asking students for clarification and examples as a way of maintaining discussion.
- Encourage students to talk to one another.
- Give students time to reflect and pause for thought.
- Control the 'talkers' and 'non-talkers'.
- Towards the end of the session sum up the main points so that the students have a clear picture of what has been discussed and learned from the session.

Evaluate the discussion session

- Notice how many students participated in the discussion.
- Make a note of who contributed and who did not. Things to look for include gender, ethnicity, shyness or reluctance to talk.
- How did the students react to the content of the discussion?
- Did students respect each other's views and was the discussion orderly?
- How far off the subject did the discussion go, if at all?
- Ask students to evaluate the session and determine what they think they have learned from the discussion.
- Compare student views of learning with your stated learning outcomes.

Points for consideration

Using the above summary, plan a discussion session based on learning outcomes. Devise a series of questions and prompts that you feel will stimulate discussion and encourage students to critically engage with the subject matter of that discussion.

Final comments

Developing successful teaching strategies takes time, good planning and a clear understanding of aims and learning outcomes. Success in the classroom, lecture theatre or laboratory also relies on choosing the most

appropriate teaching strategy for the occasion. This chapter has concentrated on some of the main teaching and learning approaches found in higher education. They are not mutually exclusive, nor are they the only methods. However, what this chapter has attempted to do is introduce the basic elements of each approach, bringing to the forefront aspects that can be developed, worked on and evaluated in such a way as to prompt further practice in teaching strategies.