2

Module 2 Teaching for Learning
HANDBOOK

CONTENTS

Nau mai haere mai! Welcome!

Welcome to teaching and supporting learning at Auckland University of Technology, and Module 2, Teaching for Learning!

This handbook is the accompaniment for Module 1 of AUT Essentials (Modules 1-2), and Module 1 of AUT Essentials+ (Modules 1-5).

Module aims and learning outcomes

This session will review a range of approaches to teaching and how they support learning. Practical guidance will be offered on how to create nurturing teaching environments that foster meaningful and positive relationships between learners. A key focus will be on designing learning that is activity, project, practice and action orientated. Participants consider interdisciplinary collaboration and recognise the role that the educator can play in supporting this within learning spaces.

By the end of this module, participants will be better able to:

1. Apply teaching approaches that facilitate active and reciprocal learning
2. Design experiences that align with the Xceptional Learning Experiences Framework
3. Plan a session or a series of sessions

How to use this handbook

This handbook contains all the information used in the Module 2 Teaching for Learning workshop.

The material is purposefully presented in a way different from the slides used in the workshop presentation as they are designed to do different things. If you want a copy of the slides please ask, although all of the material is in this handbook already.

This handbook is designed to help you work through activities in the workshop, and specific activities are included with space to write down key information or ideas that these activities may generate. You are encouraged to annotate and personalise this handbook and make it your own. Remember that noting things down can help you think about the activities and discussions and also capture some of the ideas for later use.

For purposes of simplification, throughout this handbook we use the word 'lecture' to describe a learning session – in many instances this could be easily replaced to suit your particular context with tutorial, session, lab, studio etc.

Look out for the navigation keys throughout this handbook:

Apply

Maui's hook guides us beyond our current understanding. Follow Maui's hook to reach forward, respond to questions and activities, and extend your awareness, knowledge, and teaching practice.

Gather

Tane's baskets of knowledge provide us with resources that connect us to the experiences and knowledge of others. Use these resources to shape and form your awareness, knowledge and teaching practice.

Resources:

Links to referenced resources are available on the digital version of this handbook at altlab.aut.ac.nz.

What do we mean by active learning?

Potential strategies for achieving Active Learning (in small/large group and online environments):

- Pre- and post-session reading/activities
- Paired and small group discussion tasks/'Buzz Groups'
- Whole/large group discussions
- Group rounds
- Line ups
- Brainstorming activity
- Roleplay
- Gapped/interactive worksheets
- Group polling (e.g. Mentimeter)
- Student presentations
- Case study discussions
- Collaborative worksheets
- Mapping exercises
- Posting/collating
- Whakapapa kōrero – creation narratives and local histories from cultural understandings
- Metaphor, allusion and surprise

How can we design active learning?

Professor Diana Laurillard's Conversational Framework (2012) defined six learning types and these have proved to be a very effective method to helping teachers describe and discuss the student learning process. The learning types are shown below, and in this short video, Diana Laurillard explains the six learning types.

Learning type: Acquisition

Learning through acquisition is what learners are doing when they are listening to a lecture or podcast, reading from books or websites and watching demos or videos.

Learning type: Collaboration

Learning through collaboration embraces mainly discussion, practice and production. Building on investigations and acquisition it is about taking part in the process of knowledge building itself.

Learning type: Investigation

Learning through investigation guides the learner to explore, compare and critique the texts, documents and resources that reflect the concepts and ideas being taught.

Learning type: Practice

Learning through practice enables the learner to adapt their actions to the task goal, and use feedback to improve their next action. Feedback may come from self reflection, from peers, from the teacher, or from the activity itself, if it shows them how to improve the result of their action in relation to the goal.

Learning type: Production

Learning through production is the way the teacher motivates the learner to consolidate what they have learned by articulating their current conceptual understanding and how they used it in practice.

Learning type: Discussion

Learning through discussion requires the learner to articulate their ideas and questions, and to challenge and respond to the ideas and questions from the teacher, and/or from their peers.

Laurillard, D. (2012) *Teaching as a Design Science*. London: Routledge

*Acknowledgement: Professor Diana Laurillard's *Conversational Framework* has been recreated to maintain visual consistency.

Starting a session

Beginnings

Consider starting your lecture in a way which will grab the attention of students, it might be a contentious statement, an interesting image, a problematic question, a mystery or a puzzle. This really could be anything that you feel may be appropriate to quickly engage your students into the learning. Provide the students with the rationale for your lecture; it may be a crucial element in their assessment, it might be important for contextual knowledge or it might have a real and practical application that they will have to employ in the future. Tell the students what they can expect and what you expect of them from the lecture; what do you expect them to know by the end (content), what do you expect them to do in the lecture (activities), what kind of attitude or feelings do you expect them to engage in.

Getting started:

- Do the students know you? Do they know each other? Would an ice-breaker be useful?
- Introduce yourself and establish your capacity to teach, or have somebody do it for you
- Establishing a context; setting the limits; becoming a real person; capturing attention (motivation)

What can I expect you to do?

- Learning behaviour
- Approach to learning
- Organisation

What can you expect me to do?

- Teaching behaviour
- Feedback
- Support

Establishing your authority

Do the students have a reason to value the fact that YOU in particular are teaching them? Do they appreciate the significance of your experience/research/expertise? If not, clue them in.

You can do this by:

- Telling them explicitly at the start
- Giving anecdotes that show why you are passionate/serious/furious/intensely researching in your subject

- Putting some form of biography as a footnote on the hand-outs
- Asking the course organiser, if s/he is introducing you on the day, to tell the students why you are teaching them

Establish the boundaries

Tell students the aim(s) of the teaching session, what you hope they will be able to do by the end of the session and how they (and the examiners?) will be able to tell if they have learned anything. Provide clear intended learning outcomes and how to recognise their achievement. Establish the learning imperative:

"What I am about to teach you is important to you because..."

OR get the students to make explicit to themselves, why they are listening to you:

"I have just told you what the aim of this session is. But why is AUT bothering to gather you together to hear this? Just to make sure we are all focused on what we are doing, I want you to pair off and spend 25 seconds coming up with a statement of "why this is important to xth year students in (subject discipline). Start now..."

Orientate the students as to the format of the session

"I have broken this session into three parts: the first is a straight description of some basic principles of (subject topic). I then want you to pair off to see if you can come up with some answers to some fairly elementary questions: this is to check whether you can see any of the application of what I am talking about. If you haven't grasped the key concepts, then we can discuss those until you are more comfortable with them. If you have a pretty good grasp and can answer the questions fairly easily, I will give you a few more sophisticated case studies to show you some of the more subtle complexities."

Signposting

One of the simplest things that you can and should do is 'signposting'. In educational terms, this means providing students with a pathway through their learning. This can take many forms:

- Indicating what has come before or is coming next
- Specifying where the students currently are in their learning or the syllabus
- Connecting lecture content with tutorial work and/or assessments
- Link to the intended learning outcomes
- Tie learning to broader and/or professional context – where will this be useful?
- Directing students where they should go next for further information or support

Question and answer sessions may be improved by:

- Collecting written questions
- Setting up small groups so they can discuss what questions they might have before asking anything silly in front of the whole group
- Establishing groups, which will be more prepared to answer than individuals

Think:

What stops you from asking or answering questions in front of a larger audience or a group of your peers? Conversely – what makes you comfortable in asking and answering questions? Why should your students be any different?

Tell the students whether they have to take notes

"The description of the basic principles is written out in some detail in the hand-outs and they have been made available (in the hand-outs, on Blackboard…). So you do not need to make detailed notes but you might want to jot down the key points that interest you."

During a session

Engaging

Keeping students engaged might be aided by giving them a hook. This was already mentioned in the section on 'beginnings'; a reason for staying engaged. Halfway through your lecture drop in another hook, perhaps share an exam question which was on a previous year's assessment to show how what they are learning relates to their assessment or provide anecdotal evidence of an example where this might apply in a real situation.

It goes without saying that body language will impact on levels of engagement. Much of this is common sense but if we do not remind ourselves from time to time then we can forget. Convey enthusiasm for the subject with varying tones of voice, gain eye-contact with your audience, smile and give approachable gestures with your hands and try not to move around too much; it can be distracting to watch a lecturer moving backwards and forwards.

Strategies for encouraging students' interest and involvement:

- Give students a brief overview of the lecture – its aims, the key concepts to be discussed and how it relates to previous work or lectures
- Link to things already known by the students and take this as your starting point
- Focus on developing an understanding of key concepts rather than 'getting through' large amounts of material
- Explain to students how the concepts and the subject matter to be discussed integrate with other aspects of the course
- Establish eye contact
- Show enthusiasm and interest in your subject
- Draw upon students' experience of the real world
- Demonstrate how theory applies to practice i.e. the relevance of theory
- Relate what is being taught to how students might use it later in the course, in work or in professional practice
- Ensure that assessment strategies encourage more than rote learning

Presenting

Ensure that the content of the lecture is organised in a chronological narrative, which helps comprehension, via signposts such as the repetition of the graphics.

Try to draw on the student's prior knowledge in a task during the lesson, ask them to consider what they already know about something. This will help to ground their learning an also offer some reassurance that they have a starting point for this new learning.

Be aware that your students are a diverse group with a range of experiences and abilities. One of the hardest issues for much teaching is about how and where to pitch the level, so being responsive to feedback and evaluation is important. Students switch off if the level is too high or too low, you cannot be all things to all people, so provide signposts for your more able learners. For example, give them points of reference for further learning and reading. At the same time, offer support for those struggling.

Interacting

Encourage some opportunities for talking in the lecture, actually having to articulate what you are thinking or have heard is a useful cognitive process for learning. This can take many forms and either be paired or in small groups. Activities might include mini-discussions, brainstorms, questions and problem-solving. It is useful to structure this, if you simply instruct students to talk about what they have learnt, you are likely to get a lot of irrelevant chat or a very shallow discussion, so make sure you provide an achievable but challenging task.

An activity which can be done by the whole group might involve asking them to commit to a decision. If any students have 'drifted off' this sort of decision-making task should re-engage them into the lecture as they will have to think about what they have learnt and understood before making a decision. You may feel it is or is not appropriate to gain feedback.

For similar reasons, ranking activities can also be useful. This involves asking students to place items in order of importance. You may offer them a 'Diamond 9' model, which allows students to give some items equal weighting.

Students will generally not speak up in large lectures because they:

- May be afraid of looking stupid
- May be afraid of being seen as a swot
- Need more time
- Don't understand the question
- Don't know the answer
- Know the right answer so no point saying it
- Keep their heads down so you don't pick on them

If you want students to answer:

- Explain the question clearly
- Give them time
- Provide privacy
- Consider group work/answers
- Allow students to prepare before going public
- Think about context

Some General Advice:

Make students' own experience explicit to them: Give real life illustrations of the relevance of what you are talking about. This is especially useful if you can think of examples where the students have used similar approaches or information before, perhaps in other courses or project work. It can really help them understand and value information they get in one-off sessions if you explicitly help them to link it to their experience and other parts of the course, or other courses in the programme.

Give case studies (tell real life stories): Use other people's experiences to help students see the case through a professional's/scientist's eyes. There has to be a key point to the case study. Make sure that at the end of the case study, you tell (or get the students to identify) the reason why this case study is a particularly good one to remember when thinking about your topic.

Use gapped notes: Provide hand-outs but leave spaces for students to fill in the detail. Work through the notes and invite students to suggest what they should write in the gaps. This gives a basis for discussion: what should I write in my notes? This works best if the students can see a reason why they will ever want to read the notes from your lecture/session again. If they do not think it is assessable, nor relevant to any other learning, interest or assessed coursework or exams, why would they re- read the notes? You have to give them the imperative and the motivation.

Encourage active questioning: If the session is not assessed but is to capture students' interest and if the group size is not large (say under 25 students), split the group into four sub-groups; provide each with a poster and a short hand-out explaining it to them. Ask them to read the poster and the supporting notes and create a summary for the benefit of the other students. They can put up post it notes with their questions, which you can respond to in class, or you can respond to via email/Blackboard after the class. Each student team provides a mini-summary to the other students, and has a safe way of asking questions anonymously to a strange teacher.

There are other ways of achieving this, for example set-up a debate, perhaps giving sub-groups specific points to argue. Role-play a review committee scenario with students charged with constructive criticism of proposals or papers, this can be a good way of engaging in peer review of potential projects for example.

Use images: If the session is not assessed and you are free to shape it as you wish, you might consider that the students will remember very few of the details you tell them. A slideshow/DVD may be more memorable and more inspiring.

Be student-orientated, not topic-driven: Teachers tend to be topic (subject) specialists who can speak at length on fine details of their academic interests. They are usually passionate about their topics. They tend to try to use the intrinsic interest value of their topic to hook the audience's interest (the students' interest). Perhaps this is especially true of the more research or clinically focused experts who find themselves doing one-off teaching. In reality, students have their own interests, chief amongst them being gaining a good pass in their studies. A teacher who can see their teaching event from the student point of view and make sure the student knows what's in it for them, is in a better position to get the students to listen to the details of the topic. Only a truly great orator can hook a person's interest in any topic. The one-off teacher cannot cover everything in one session. Trying to cover the ground can often be very dull.

Have you ever let your attention wander during a conference presentation? Conferences are topic- driven hothouses. If topic-driven speakers turn off their fellow specialists, why shouldn't students get turned off?

Research relevance: In general it is a good idea to use you particular experience as a key/or stimulus; bring in your particular research/industrial/clinical experience; show actual examples and/or use anecdotes to give the material new relevance. Beware of simply giving a research talk, the trick is to use your research to show relevance and to increase enthusiasm but still link it to the rest of the course at a level the students can understand so that they can put it in an appropriate context.

Linking: Where possible link to other lectures and parts of the course, linking forward and backwards helps students put what you are saying into context. It also helps you know that you are positioning the material well within the course.

Are there other useful sources of information available to the students relevant to what you have been teaching? Consider linking to books, key papers and web or e-learning resources. Just be aware of the level of the material and the fact that you may have to guide the students as they may be less able to gauge the level and usefulness of the material for themselves.

Active learning in larger groups and lectures

Making short breaks in lectures

It is possible to stimulate students within lectures by arranging some form of interaction or break. Most of these activities will result in noise – so a good idea is to arrange a sign beforehand so as to regain control afterwards. Breaks can give you a break too.

Read notes	"Take two minutes to read through your notes."
Write down 1 or 2 questions	"I would like you to write down one or two questions that you have at this point in the lecture."
Ask your questions	"Take the questions you have written down and ask them of the people around you."
Tackle a problem	"Tackle this problem – do it on your own unless you are stuck."
Read some material	"Read the case in the handout."
Discuss a question	"In pairs, discuss the following question."
Apply this concept	"In threes, analyse this case using the concepts I have just outlined."
Take a short test	"Here are three short questions. Do them on your own. You have five minutes and then swap answers with a neighbour."
Silent reflection	"Take three minutes to think about what we have been talking about."
Planning	"Take two minutes to plan out what further work you need to do on this topic: what you need to read, try out, get practice on, etc."

To find out how you are doing:

- Ask for a show of hands – would you like a break? – am I going too fast?
- Ask students to write down the three most important things you have said. Optional: share this to the whole class in a discussion forum, shared document or class wiki page.
- Give students an instant questionnaire (electronic, paper or show of hands).
- Give students a quiz on the key concepts to check for understanding (electronic, paper or show of hands).

Active learning in small groups

Suggestions for small group activities

Ice-breaking activities

These can provide a fun, non-threatening start to group sessions. Examples include asking students to say their name, one thing they dislike and one thing they really like.

Brainstorming

Brainstorming is designed to stimulate creative thinking. Brainstorms are governed by four rules – no criticism, 'freewheeling' welcomed, quantity is important, development of ideas is merited. The starting point should be to encourage all participants to think aloud – with all ideas being recorded on the flip chart/post it notes. The second stage is to begin to clarify and categorise ideas – the third stage involves an evaluation of the ideas.

Rotating brainstorms are a variation where the group divides into three or more. Dimensions of the brainstorm are written on the top of relevant number of flip chart pages. Each group brainstorms onto paper until told to stop – they then 'rotate' their sheets – read the other groups contributions and then add some more.

Buzz groups

Students asked to pair or form small groups to exchange ideas or address a set question or to clarify understandings/identify misunderstandings etc. Buzz groups encourage participation and are particularly helpful when groups are large, if too many people are trying to contribute at once or if shyness is inhibiting several students. A clear task must be set with a time limit and then each group reports back to the whole group. The term 'buzz' comes from the hive of verbal activity.

Crossovers is a way of mixing the composition of groups so that ideas in different groups are being shared and disseminated. For example, if you have six small groups of four students each working on Part 1 of a task. You could then ask, for example, the person in the group with the latest birthday to move from one

group to the next. You can then ask that person to summarise the thoughts of the group left behind to the new group and then set Part 2 of the task.

Snowballs and pyramids

A variation of the 'buzz group' where students are asked to form small groups to exchange ideas or address a set question or to clarify understandings/identify misunderstandings etc. Students either start with an individual task (e.g. reflection) or in pairs to share initial ideas. This pair then joins another pair to form a four where students start to look for patterns / trends/points of consensus/ disagreement. It is possible to develop further by forming groups of eight who then begin to develop principles/guidelines or action plans.

Data interpretation

This can take many forms. It may involve looking at clinical, research or scientific material (such as test results, charts, x-rays). An excellent way to encourage students is to analyse and interpret data.

Discussions

Discussions can take a number of forms. The teacher's role is to facilitate discussion and encourage participation. It is not necessary to aim for a consensus or resolution point. In controlled discussion the teacher leads and directs discussion on a pre-defined topic. Students either ask the teacher questions, or more typically the teacher directs questions to the students. Free discussion often has a focal point such a case study or an article – circulated before or at the start of a session. The teacher's role is to facilitate discussion and encourage participation. It is not necessary to aim for a consensus or resolution point.

Guided discussion is a useful technique for encouraging decision making processes. All students are expected to participate in an open and constructive discussion. All students should have an opportunity to present their ideas to the group. Assumptions (and data) underlying opinions should be explored – not just the opinions themselves.

Fishbowls

Divide the class into inner and outer groups. The inner group is asked to discuss the issue/topic and the outer group is asked to look for themes, patterns, soundness of argument etc.

Variations include:

- The addition of an 'Empty chair' to the inner group, which can be briefly occupied by an outer group member to ask a question/make a comment.
- 'Alter ego' where any outer person can tap an inner person on the shoulder to either take their place or put their point in a different way
- 'Inner theatre' where inner group have time to prepare a role play/scenario that they act out (without prior briefing to outer group) in the round – Outer group watches and then comments

Line-ups

Students are asked to adopt a position in a line to represent their view on an issue.

Role play

This requires students to place themselves in a particular situation or take a committed position on a key issue in the course. It is particularly valuable technique for teaching interpersonal and communication skills, particularly in areas with a high emotional content. It is useful to arrange to sit in on a role play session before trying it yourself.

You will need to:

- Explain the nature and purpose of the exercise
- Define the setting and situation
- Select students to act out roles
- Provide players with a realistic description of the role or even a script. Allow time for them to prepare and, if necessary, practice
- Specify observational tasks for non-players
- Allow sufficient time for the role play
- Discuss and explore the experience with players and observers

Not all students need take on a role and it is often helpful to have students take on the role of observer. The teacher should explain the context, ensure that those taking on roles are adequately briefed (written information often helps). The teacher should also ensure that students de-role and are adequately debriefed. Scripted role play is a variation where students are encouraged to write (and subsequently read out) a script of an interaction between two or more people.

Simulation

Simulation requires preparation and can be very useful in stimulating discussion or illuminating particular issues. It can also be used to bring together learning from different elements of a course.

The use of simulated patients in health education is a particularly effective way of teaching interview skills. The use of simulated patients allows interviews to be scheduled at a convenient time and place, all students can be faced with the same situation, the interview can be interrupted and any problems discussed freely in front of the 'patient'. There is also no risk of offending or harming the patient, the student can take as much time as necessary, the same 'patient' can be re-interviewed at a later date and the similar can be trained to provide direct feedback, particularly in the area of doctor-patient relationships. Simulations can be developed for situations which are impossible for students to experience with real patients. This is particularly the case for emotionally charged areas.

Remember: these simulation principles can be adapted for other disciplinary contexts.

Ako pedagogies

Whakapapa kōrero are cultural- and locale-specific histories. Whakapapa kōrero are stories woven with theories that demonstrate a way of being. Using whakapapa kōrero in a lesson helps to connect learners to the environment and the local people, providing some relevance to the learner.

Games and mnemonics can be used to refine skills and to help recalling knowledge. Games are designed to replicate and refine the skills required in practice, and mnemonics can bring joy to mundane memorisation.

Learning in the dark offers a new way of experiencing through heightening the senses of listening, touch, smell and taste. The visual is then forced to come through the imagination, clear of the visual 'noise' of other people watching, activity in and outside the classroom and digital technology.

Micro-teaching

This is a useful tool in educational development. It provides individuals with an opportunity to prepare a teaching segment and deliver it to their peers. As well as invite students to give feedback against pre-defined parameters. It can also be used for other practical activities such as learners giving a micro-demonstration or mini-lecture on a topic.

Peer feedback

This is a very useful strategy that can be used with role rehearsal (e.g. in communication skills) and micro-teaching. Those giving feedback should be briefed with agreed parameters and reminded of good practice when giving feedback. Consider strengths and weaknesses, restrict feedback to observed behaviours. Use examples, be constructive and offer ideas and guidance on aspects to develop (and how) if possible.

Reflection

Reflection is felt to encourage deep learning and is prompted by new information or the unexpected. Reflection is a process of thinking about what is happening (or thinking back on what has happened), thinking about what might have contributed to it and appropriate actions to take in response. The teacher may encourage students to reflect on their own experiences or to share experiences with others around them. Reflective logs and diaries, critical incident and significant event analysis all have reflection as a key part of the process.

Teacher input is fairly self-explanatory. Small groups are the perfect way to tap into the key principles that support effective learning – activity and interaction. Beware of too much (didactic) teacher input – there is still a risk of lecturing to small groups.

Active learning in demonstrating

Taken from: Allison, I. (1995)

"Demonstrators guide students through various stages of setting up, working through, recording and analysing the results of experiments, field trials and surveys. They work as part of a team, usually made up of other demonstrators, and lecturers.

Demonstrators often have the most direct contact with students, therefore the impact a demonstrator can have on a student's learning can be significant.

Demonstrators help students to develop their skills of enquiry through practical and field classes. Field and laboratory classes enable students to see how knowledge is derived through application, experimentation and practice. They are provided with experiences that will help them make the connections between theory and practice. They are given the chance to apply scientific methods by using skills of organisation and planning, manipulation, observation and analysis. Simultaneously, students come to understand professional attitudes and behaviours.

Responsibilities

What you are expected to do as a demonstrator will vary according to discipline, department, paper, students, topic lecturer. At one extreme, your role may be to assist students and answer queries without having been involved with setting up the practical; you may have neither continuity from one practical to another, nor longer-term commitment. At the other end of the spectrum, you may be in sole charge of a group of students, ensuring that all equipment is available and working as well as being responsible for marking assessed work and giving written and oral feedback to students in your group.
Some demonstrators may be responsible for the provision of equipment and ensuring that technical staff are present to run it. Other responsibilities may include the distribution of handouts, the supply of consumables prior to practical sessions and the distribution to students of specimen answers.

Practical tips for demonstrators

Practical work and lab classes have particular aims for students learning. Demonstrators should think of themselves as contributing to those aims:

Consolidating subject matter knowledge

Through lab work and practicals, a variety of principles can be illustrated: those learned in lectures, as an extension to the material presented in lectures, as a simulation of a real activity in a lab or studio, through the communication of ideas.

- Tips: use simplified examples; explain ideas using illustrations, diagrams or stories; ask students to explain ideas to other students; use examples not referred to in the lecture.

Introducing disciplinary methods and procedures

Through hands on experience, students can develop an understanding and appreciation of the methods and ethos of practitioners in the discipline. These real life and life like experiences can be very stimulating their interest and motivate students to continue and to add to their learning.

- Tips: stimulate independent thinking; teach principles of experimental work in the subject; refer students to extra material from the library illustrating real life examples of how lab work has resulted in discoveries; show how the use of labs is a process of discovery.

Developing technical skills

Field and lab work provides opportunities for students to learn how to use specialised equipment, materials and tools. Technical, practical, observational, manipulative and measurement skills can all be developed. Training students in the writing of reports and keeping day-to day lab diaries are also skills that can be developed.

- Tips: take time to familiarise students with apparatus and measurement techniques; train students in observation; point out what might not be apparent; give students an opportunity to try things out (being wary of safety and themselves and the equipment).

Developing cognitive skills

Carrying out experiments and projects ca promote a range of cognitive skills involved in problem formulation and analysis, classifying data and explaining results and predicting responses.

- Tips: focus students' attention on aspects of experimental design; teach students to make deductions from measurements and to interpret experimental data; develop skills in problem solving; use experimental data to solve specific problems; foster critical awareness by helping students to avoid systematic errors.

Promoting teamwork skills

Lab and field work, practical experimental activities are often carried out by group. The skills involved in working worth others can therefore be developed and students can gain an appreciation of the value of others in helping them to learn. Also, in teams, tasks can be shared and observations, predictions and analyses can be discussed meaning that teamwork is a good way to achieve better quality outcomes to an experiment, trial or project task.

- Tips: where possible, get the students to: design experiments for themselves; set up experimental equipment; check observations of others in the team; share possible interpretations with others in the team; compile group reports.

Increasing motivation

The exchange of ideas inherent in working with others can lead to greater motivation towards and interest in the subject. There are thus personal, social and subject learning gains for the student.

- Tips: point out the reasons for experiments or tasks; clarify how the task will contribute to

overall learning in the course; point out how the lab or field work draws on skills learned in other courses and how these new skills and ideas could be applicable in many other situations."

Remember: some of these activities can be adapted for use in large groups/ lectures also.

Experiment! What other types of active learning strategies can you create?

One Minute Paper: What one thing will you try out to make your teaching more interactive?

What one thing do you want to find out more about?

Ending a session

Finishing off: Linking forwards: do you know what they have next? Do the students know? Can you suggest how your session links to other material on their course? Are you willing to be contacted? (by email &/or other means?) Do you have any further reading recommendations?

Taken from: Race, P. (2020)

Ideally at the end of the session, you want to avoid:

- "I hate it when the lecturer over-runs and I have to rush to the next one only to be late there" - "We didn't get through what was promised at the beginning."
- "They looked more and more flustered as the time ran out."
- "The lecture just seemed to stop. No conclusion, no ending."

It's so easy for time to run out, so that we feel our only option is to stop in mid-flow – not a good idea at all. Saving the last five or even ten minutes for a purposeful ending phase for a session pays dividends. Even when time does run out, it's far more important to have a good ending than to 'get through' all of the agenda that has been presented. In other words, cut short some of the middle and leave room for the ending. This is quite easy to do when the middle has been centred around student-centred activities - simply miss an activity or cut one a little.

If you're doing a series of sessions, you don't have to 'get through it all' or even 'get through all of the things you promised at the beginning', particularly if something really vital and interesting came up in the middle – perhaps sparked off by an important question from a student. In such circumstances, it's well worth explaining towards the end "We'll catch up next time with a couple of things outstanding, as it was really useful to spend some time on (whatever it was)."

When deciding to miss one element so that you can come to a resounding ending, don't forget that only you will know what you missed out – your audience may be entirely unaware of what you missed. But they will be very aware of how you end. Some ways of coming to a robust, recognisable conclusion include using one or two (not more) of the following:

- Go back to the agenda of intended learning outcomes, re-showing a slide containing them, and briefly summarise how each has been addressed (this helps students with the making sense stage of their learning)
- Remind students about what exactly in due course they should become able to do with the material covered in the session, i.e., the evidence of achievement which might in due course be assessed in an assignment or exam (note how students' attention is quickly regained if you do this)
- Giving students a minute or so, ask all students to jot down the most important thing they wish to carry forward from the session. Then ask them to compare with near neighbours. Finally, ask for one or two volunteers to share the thing they'd chosen
- Posing a task for students to continue online, using selected web resources (for example, to find the three most important reasons why...). But remember your task, and follow it up at the next session, however briefly
- Pick out any unfinished business from the agenda to be included in a future session or to be diverted to tutorial sessions for in-depth exploration (note that this allows you to turn occasions when time runs out into what seems like an intentional strategy)
- Formulate a new agenda for the next session, to whet students' appetites for what is to come next, and to give them the opportunity to do some preparation
- Set a task for all students to complete before the next session, or for them to bring along to forthcoming tutorial sessions (but don't fail to revisit this next time)
- Present in advance the intended learning outcomes for the next session, giving students the opportunity to add focus to their preparatory work or reading

Any of these techniques is better than simply having an 'any questions?' episode right at the end. An open-ended invitation to ask questions can lead to the majority of students with no particular questions feeling that for them the session is over and the group gradually dissolving into shuffling and movement. Regularly ending by giving students something to do is a useful ploy; it helps to reduce the fidgeting that so often occurs when the session is obviously about to wind up – closing of books, rustling of papers, shifting of chairs and so on. When students need to listen carefully so that they know exactly what a task is, such fidgeting is almost completely avoided.

Presenting online

Teaching can be conducted online by either an asynchronous method of pre-recording a session and uploading it to Blackboard, or a synchronous method of live streaming.

With both methods, you can keep your students engaged by using well-designed learning activities (e.g. group work, discussion, short answer or multiple choices questions). Using visual aids such as diagrams, photos, graphs, tables and colours is also helpful for students to make sense of new information and keep them engaged.

Five tips for presenting in the online learning environment:

1. With an asynchronous method, divide longer teaching sessions into shorter (six to eight-minute) sessions.
2. With a synchronous method, clearly communicate times and accessibility steps to your students ahead of the live streaming.
3. Engage your students by incorporating learning activities between a series of shorter recorded videos, or within your live stream recording by using polls in Blackboard Collaborate, Mentimeter, AnswerGarden or Padlet.
4. Let students know when new material is posted: This can be as simple as posting a brief announcement or including a bullet point in a 'weekly update' to students.
5. Keep things accessible: For materials to support online sessions, try and design for mobile-friendly formats, so consider saving other files (e.g. PowerPoints) in their original format and a PDF. PDFs are easier to read on mobile devices and keep the file size small, and the original file format may be helpful to students who use accessibility software.

altLAB has prepared A good practice baseline for Blackboard sites guide. They are the essentials that provide a baseline from which staff can further develop their use of Blackboard to enhance their teaching and students' learning. The baseline is informed by evidence about what constitutes good practice in learning and teaching.

Evaluating your teaching and getting feedback from your learners

How do you know how well your teaching is going and the extent to which the students are meeting the learning outcomes that you have designed? This section outlines some very simple techniques that can help you answer this question. By evaluating your teaching throughout the paper (or during a single session), your students will see the immediate benefits. If you only evaluate at the end, students may feel that providing feedback is too late to help them. If you are teaching more than one session, conducting some evaluation before mid-semester break can often be a good first step.

Self-reflection

Although time is precious, try to reflect on your teaching performance regularly. For example, after every teaching session, consider asking yourself:

- How did the session go?
- Did the students seem engaged?
- Did the students seem to be learning?

If you've created a session plan, look over it afterwards and make a few notes about worked well and what didn't go so well. This will act as a usefully reminder when you next teach.

Using an audience response system

Using their own devices – laptops, tablets or phones – students can give you instant feedback that is displayed on the screen, usually in the form of a bar chart or as free text comments. You can combine this with some of the following suggestions or you can be creative ("What was the hardest thing to understand today?" or "If you could change one thing about this course after semester break, what would that be?" or "Which of the following statements do you agree with the most?"). A large number of systems exist and they have different strengths and weaknesses, particularly if you are using the free versions. Mentimeter is a good free option.

Minute paper

A minute paper or a brief reflection that asks for feedback on a particular learning and teaching session. Students may be asked to respond anonymously to the following questions: "What is the most important thing you learned today?" – "What question remains uppermost in your mind?" It can be used during or at the end of a teaching session.

One-sentence summary

The one-sentence summary is a technique that involves asking students to consider the topic you are discussing in terms of Who Does/Did What to Whom, How, When, Where and Why, and then to synthesise those answers into a single informative, grammatical sentence. These sentences can then be analysed to determine strengths and weaknesses in students' understanding of the topic.

Common problems and possible solutions in the classroom

Taken from: Bertola, P. & Murphy E. (1995)

Problem	Possible Solutions.
Students won't prepare or participate	Ask "Why?" Set specific tasks. Break into sub-groups.
One student dominates the discussion	Thank the contributors and then invites others to speak. Have around (each person speaks or passes). Break into sub-groups and appoint the dominant student as facilitator. Use you non- verbal communication (for example, hand gesture) to invite comment.
Students are silent when you ask a question	Ask easier questions. Confront ("I feel that you are worried about being wrong"). Give them time to write down notes before speaking. Try smaller groups and a pyramid sequence.
Students do not listen to each other	Confront. Remind them of the ground rules. Play a listening game. Change the seating arrangements. Ask them to paraphrase.
Students use sarcasm or other put downs	Confront. Remind them of ground rules. Invite discussion about the consequences of such behaviour. Be assertive.

Problems and solutions: working with others

Taken from: TEDI (2001).

Everyone is an individual, everyone responds to a group situation differently, but you, and the students, have to work with each other during the laboratories. Some students are difficult to work with, and make it difficult for others to work with them. Avoid embarrassing or shutting them off. They can be valuable members if you can manage to get them on your side.

The show-off, know-it-all, or arrogant student

These people seem to dominate discussions, dismiss information as 'common knowledge', treat what is being covered as something they already know. Do not allow them to dominate the session or discussions.

Response: Ask a difficult question. Ask them to elaborate their point with probing from you. Refer it back to the group, for example, "That's an interesting point. Let's see what the rest of the group think about it."

The keen volunteer

These people are always the first to nominate or volunteer to do something.

Response: Thank them and suggest that others need to be involved as well.

The positive participant

These people are positive and cooperate fully in the session and activities.

Response: Use these students frequently and try to get them working with others in different situations.

The argumentative student

These people argue about every point being made.

Response: Do not get involved in arguments. Remain calm. Agree with any good points but ask the group's reaction to any bad points. Always try to stop them monopolizing. The group will usually deal with these people in their own way. Try to find out what is bothering them between sessions and try to elicit cooperation.

The shy participant

These people could be shy, bored, indifferent, insecure, or may just learn best by listening.

Response: Find out what is causing the silence. If shy, try to provide opportunities in smaller groups where they can participate with less anxiety. If bored or indifferent, try to find out why, and get them involved through their interests or what they are particularly knowledgeable about etc.

The persistent questioner and the rambler

These people ask a number of questions, or start to ask a question but take a long time getting to the point.

Response: Answer the question to the point. If subsequent questions are asked which are going off the point suggest that you discuss them during a break or at some later time.

The students who whisper during sessions

These people whisper or have private conversations during the sessions and can be quite distracting to you and others.

Response: Do not embarrass them. They may be discussing something they found interesting in the lecture. Ask them an easy question to let them know you want them back in the session. If it persists ask them during a break what they are discussing and do they need some point clarified or raised with the group for discussion. If it turns out to be a personal conversation, ask if they could leave it till later to discuss.

The personality clashes

When there is a clash of personalities and it looks like animosity is developing, then it needs to be addressed, as it can affect the whole group.

Response: Emphasise points of agreement, minimise differences. If it persists, be open and ask that personalities be left out of discussions. This can be done in private, and, if necessary, in public. Facilitate different groupings so they are separated as much as possible. Do not attempt to mediate between them.

Regardless of the different personalities of the individual participants you need to make sure that you:

- Keep the session or discussion on track
- Prevent the session or discussion falling into silence
- Keep an eye on individuals and note their contribution

Asking and answering questions

Whatever role you take as a teacher, (e.g. small-group teaching, laboratory supervision, one-to- one tutoring), you are likely to ask and answer many questions.

DO:

- Be open to learning from, and with, your students (ako)
- When interacting with students, ask questions rather than make statements
- Ask non-directive questions (allow them to 'call the shots': choose what to say)
- Realise the importance to learning of students asking and answering questions
- Probe for links between what they are learning and what they already know
- Seek examples from students' own experience, and give examples from yours
- Ask exploratory questions (to encourage students to elaborate points made)
- Ask clarifying questions (to determine exactly what is puzzling your students)
- Wait: give students time to think before they answer your questions
- When questioning a group/whole class:
    - question – pause – name
    - don't allow calling out
    - distribute questions randomly
    - avoid indicating who must answer until everyone has had time to think
    - encourage responses by getting small groups to formulate a joint answer
- When handling answers from a group/whole class:
    - take one at a time
    - welcome all answers (within reason)
    - take care not to embarrass anyone who gives a wrong answer
    - build on answers
    - resolving apparent contradictions can help students to learn
    - find out by show of hands who else in the class had the same answer
- When answering questions from a group/whole class:
    - accept at any time, or tell students when you will accept questions
    - treat all as of equal importance
    - deal with relevant ones immediately and others later (don't forget)
    - if you don't know the answer, don't bluff
    - say you will find out, or don't know and ask the student to find out

- Be sympathetic and attentive if students want to talk about problems that may interfere with their studies – but privately perhaps at the end of the session
- Smile: it is the best ice-breaker!

DO NOT:

- Do work for your students
- Talk down to or patronise students
- Make students feel awkward, ignorant, embarrassed, or in any way uncomfortable
- Ask leading questions (which expect students to agree with you)
- Ask begging questions (which require students to ask you what you mean)
- Ask questions with built-in answers ("x is bigger than y, isn't it?")
- Ask multiple questions ("So what will happen next? What will you do next? What- apparatus will you need?")

Using 'story telling' in teaching

Once you have decided upon your intended learning outcomes for your lecture and are starting to plan your delivery, it may be useful to consider the type of lecture that you want to deliver. This is important to consider, as it will give you an indicator of not only the content and the structure of the lecture but also the type of language that you might want to adopt in your delivery. Having a strategy, such as those outlined below, will keep you focused on what you are trying to achieve but may also keep your learners more engaged. The following list is an adaptation of the suggestions outlined by Sinclair Goodlad in Speaking Technically (1996). These approaches need not be taken in isolation or as fixed but instead be considered a useful tool to be adapted to meet your own needs.

Type of story	Description	Intention
You should adopt x because...	**Argument** The use of complex thinking which leads towards a certain course of action.	To demonstrate that certain information provides an argument for adopting one system or device over and above another.
The evidence suggests that... but...	**Critique** An exploration of what existing evidence tells us but with an examination of what further research is needed.	To highlight what is currently unknown or unclear.
Don't let this happen to you... It is urgent that we...	**Warning** An explanation of a potential or actual 'disaster' with the provision of an alternative way to avoid the situation.	To highlight potential/actual problems and consider/provide solutions.
I will argue that...	**Persuasion** The pulling together of ideas and information to form a technical argument.	To convince your audience of a thesis.
We are nearly there...	**Problem-Solving** An examination of a piece of research, highlighting how close it is to achieving its ultimate goal.	To show how your research is designed to solve a particular problem.
If we can solve this, then we should be able to... but we need funds to crack this...	**Practical Constraints** An exploration into a solution-based approach to a particular problem, which could have a range of useful applications.	To demonstrate the importance of funding for solving a variety of problems.

An unexpected problem has arisen... You should change procedure x for y...	**Alternatives** The use of complex thinking which leads towards the rejection of a certain course of action, in favour of another.	To recommend a change in procedure.
Can you help solve this...	**Solution** A description of what needs to be achieved by bringing listeners to the cutting edge of the discipline.	To recruit potential candidates.
Why theory x is better than theory y...	**Compare & Contrast** The discussion of a range of conflicting views, which rival one another.	To demonstrate that there is disagreement and argument within a particular field.
Which is the best...	**Debate** The explanation of a range of options within a field of study and the provision of some criteria against which to make some judgements.	To compare material in a systematic way in order to come to a judgement.
These explanations won't do because...	**Rejection** The deconstruction of a favoured theory through combative argument and exposing of weaknesses.	To demonstrate that there are alternate theses to the accepted position.

Ako to activate learning

The power to activate learning is as much of an art as it is a science. Māori pedagogies rely on interpersonal and authentic connections and relationships to be successful in creating exceptional learning experiences. Drawing on a learner's prior knowledge – the experiences of the world that have shaped their understanding and knowledge – a teacher designs lessons that are based on:

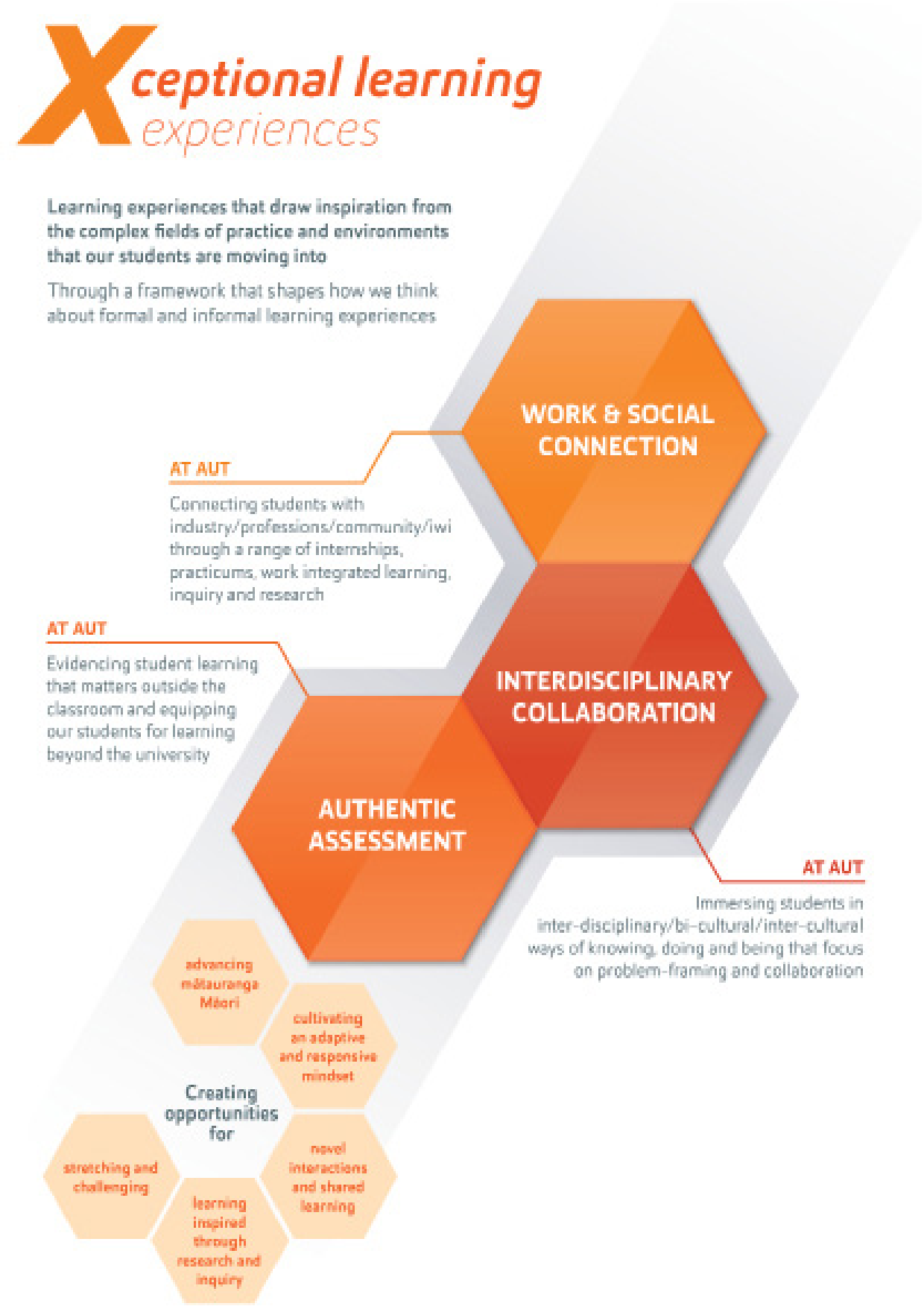
- Relationships – students don't care what we know until they know that we care
- Relevance – relationships and cultural identity are tethered to academic learning
- Responsibility – recognise the needs and motivations of the learners

In the past ako has been associated with supporting Māori students, however, its principles are relatable and relevant for all learners. Hear from teachers who have developed a culturally-responsive teaching practice with ako.

Associate Professor Jeff Duncan-Andrade shares why and how relationships (32:50), relevance (54:30) and responsibility (1:13:00) shape the learning experience and the impact on a student's learning.

The Xceptional Learning Experiences Framework

All teaching at AUT should be informed by the Xceptional Learning Experiences Framework (XLE).



altLAB Sparks provide further explanation on the XLE Framework – these are available for you to use at altlab.aut.ac.nz.

Reflect on your teaching

Extend your process of teaching for learning by reflecting on the outcomes of your practice. Specialist in Higher Education, Associate Professor Beth Beckmann offers this guided thinking process:

*Acknowledgement: Wording from www.bethbeckmann.com utilised to maintain visual consistency.

What did you teach/how did you approach a particular teaching session?

When? (duration, ongoing...)

Why? (motivation, evidence-based...)

Who? (a particular group of learners...)

Challenges?

What happened (to you, the learners, evaluation...)?

How did it feel?

What happened next?

Was there any sustained impact?

Reflection is an integral part of improving and enhancing your teaching practice.

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Notes

Our altLAB suite of
resources is available at:

altlab.aut.ac.nz

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