Small Group Teaching in Economics

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1. Introduction

Small group teaching is an essential part of economics instruction in higher education worldwide and most instructors will engage in this mode of teaching in some way. Examples of small group teaching can be traced far back in history; for example, in the Middle Ages, scholars read original resources to small groups who listened and took notes. In the present day, most small group teaching in higher education takes the form of tutorials (also called seminars or class sessions), which run alongside lectures for a module. Students taking the module are split into smaller groups to recap and apply the lecture material. In addition, instructors of, for example, optional modules with fewer students may also encounter a teaching environment with a small number of students. Higher education instructors of economics small group teaching will often be economics research students but may also be academic staff. Ultimately, teaching in both settings follows very similar pedagogical principles, and the discussion in this chapter covers any teaching environment where the instructor works with a small number of students, say of approximately 3-30.

Universities typically use small group teaching sessions to give students a more individualised learning experience. However, these sessions are very expensive for institutions. To justify these costs, small group sessions – hereafter tutorials - should make a significantly positive impact on student learning. Yet in practice, the delivery of tutorials often lags behind its potential, with poor attendance a widespread phenomenon and students' feedback pointing at their ineffectiveness. In a student survey at a UK university, students said:

> "I do not see the point in coming to the class: the teacher just goes through the solutions with no value added."
>
> "The seminars were dire and I don't feel they benefited my learning at all and at some point even just lead to more confusion over the subject."

Current pedagogical research clearly suggests that effective learning happens when students construct their own knowledge in an engaging and student-centred learning environment. This is true for both large and small group teaching. What makes small group teaching special is that it lends itself to interactive and student-centred teaching and thus has the potential to be an incredibly effective mode of instruction, when appropriate teaching approaches are adopted. Nevertheless, much of economics small group teaching still takes the form of front-led seminars, where the instructor develops answers to a set of questions with limited focus on students' process of actually understanding the material. This chapter provides a guide on how to make small group teaching student-centred and engaging so as to facilitate the effective learning of economics.

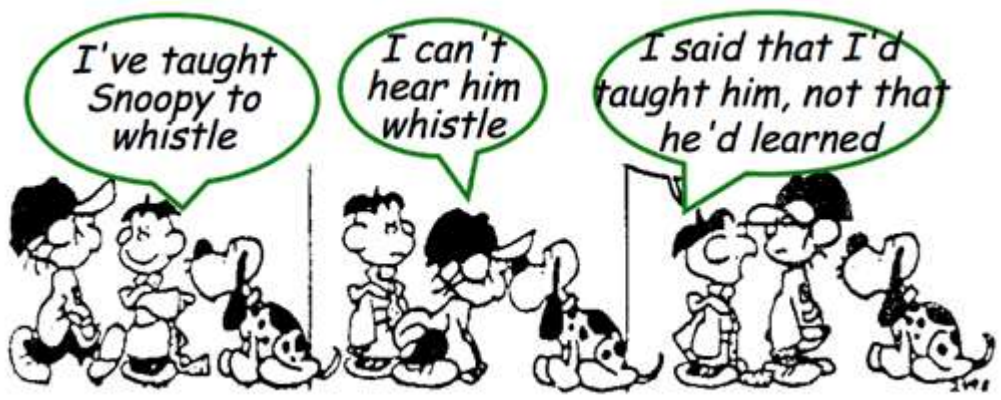
2. How students learn

> "Learning takes place through the active behavior of the student: it is what *he* does that he learns, not what the teacher does."
>
> Ralph W. Tyler (1949)

Tyler (1949) just rephrases the old adage that we learn best by doing. This idea is the basis for all constructivist learning theories (see particularly Piaget (1950) and Bruner (1960, 1966)), which essentially suggest that learning happens when students 'construct knowledge with their own activities' (see Biggs, 2007, p. 22). From an instructor's perspective, it is vital to create a learning environment where the student can engage with the study material instead of one where the educator only presents knowledge.

Far too often the instructor thinks that just because she/he went through certain material, students will have grasped those concepts and be able to apply what has been taught. However, this is not necessarily true (see Figure 1).

Figure 1



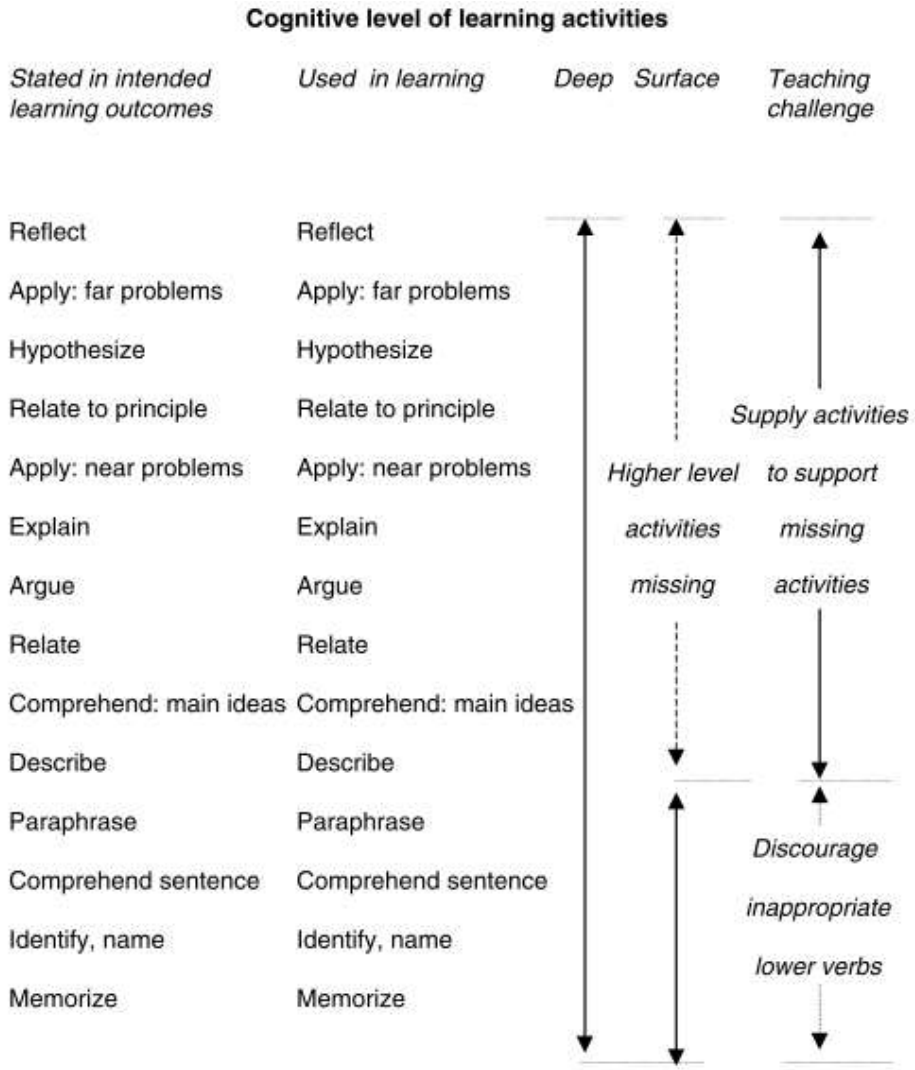
Suggesting that students need to create knowledge and practice themselves is not unique to small group teaching. Indeed, it applies to all kinds of learning environments. Yet, while in large group settings instructors often rely on audience response software and other technologies, in a small group setting the implementation of interactive learning activities is far more straight-forward.

Biggs (2007) identifies different learning activities that can be implemented, often depending on the group size. For larger groups simple peer discussion, the use of audience/personal response systems, e-learning projects such as Wikis, Twitter or Facebook and Moodle forums can be effective. However, with small groups, there is the possibility for effective use of class discussions, games and experiments, think aloud tasks, role play, research projects, presentations or collaborative group work. Such learning activities put the student in charge of her/his own learning.

Research suggests that when students create knowledge themselves, retention rates are much higher. The so called 'learning pyramid' matches retention rates to different learning activities. Sousa (2006) ranks different learning modes according to their average retention rates after 24 hours: lectures (5%), reading (10%), Audiovisual (20%), Demonstration (30%), Discussion Group (50%), Practice by Doing (75%) and Teach Others (90%). While the educational literature still debates the validity of these estimates, there is a general consensus about the effectiveness of participatory teaching methods.

What lies behind the higher retention rates is that certain learning activities engage the student to construct new knowledge, for example through reflection, hypothesizing, explaining and arguing, thereby facilitating so-called deep learning. Creating a teaching environment where deep learning can happen is a key aim for a successful instructor. Figure 2 orders some learning activities in their relation to deep and surface learning.

Figure 2: Bigg's Adjectives to Describe Cognitive Engagement (from Biggs, 2007)



Small groups ideally lend themselves for activities which facilitate deep learning and which can create a constructivist learning experience. Table 1 is an overview of activities that an instructor can implement:

Table 1

Suggestions for small and medium sized group sessions	**Activities**
Working in pairs	• Prepare answer to a question • Clarification of ideas • Compare individual answers and arrive at a joint answer • Marking each other's work
Working in threes	• As with pairs • Speaker/listener/observer
Working in fours or fives	• Debating topic and arriving at a team view • Preparing answer for plenary session (use of flip-chart paper) • One or more members present team view to whole seminar • Project team with division of labour
'Pyramid' or 'snowball group' (combining groups or adding individuals to groups one-at-a-time)	• Group problem solving • Bringing together and comparing work/answers/views of small groups • Getting the different constituent groups to focus on a particular aspect of a topic and then bringing the aspects together to form an overall view/report
'Fishbowl' (the 'fish' discuss an issue, while outside observers note criteria used etc)	• Group problem solving & discussion • Exploration of an issue
'Envoys' or 'crossover groups'	• One person from each group joins a different group to inject new ideas into discussion. • Groups are split up and re-formed to share ideas.
Formal debate (four speakers, formal debate rules, contributions from floor, vote at the	• Individuals assigned roles in advance, so that they can prepare their speeches.

Table 1	
Suggestions for small and medium sized group sessions	**Activities**
end, possibly vote at beginning also and then two votes compared)	• All students required to prepare the topic in advance. Then groups assigned to each side and prepare their speeches. • Individuals then chosen by tutor or by lots to make the speeches.
'Your witness' (modelled on Radio 4 programme)	• A panel of students is chosen, primed to represent different views on a topic. Other students are given a specific part of the topic to prepare and to be the 'expert'. They are called upon one-at-a-time and the panel quizzes them. Tutor chairs the proceedings. • Seminar split into several panels and the 'experts' move from group to group. Each group then prepares short report in the light of the evidence it has gleaned. Reports are then presented to the whole seminar or handed in to the tutor for marking.
Quiz show (individuals or preferably in teams)	• There are many shows that could be copied or adapted, such as University Challenge, The Weakest Link, Who Wants to be Millionaire? or Brain of Britain. • Students could prepare specific topics
Presentation with primed respondents	• An individual student is assigned to prepare a short presentation/paper and one side of A4 of key bullet points/diagrams/ equations, which are distributed to the rest of the group in advance or tabled. Another student is assigned to be the respondent. The rest of the students are assigned to particular aspects of the topic and asked to prepare one question. • Two or more students are assigned to prepare particular aspects of a topic, and then as above. • Advance reading is done, and then the final draft of the paper is prepared in small groups, and one student is allocated to make the presentation.

Table 1	
Suggestions for small and medium sized group sessions	**Activities**
Role playing	• Students allocated specific roles and given a scenario. (Examples of role playing include: price setting under oligopoly, wage negotiations, international trade negotiations, pre-Budget ministerial/interest group negotiations.) The tutor can introduce new evidence as the exercise progresses. • Watch a video with at least two points of view. In small groups, students each take on the role of someone in the video and debate the issues.
Game, simulation or experiment (there are many games or simulation exercises available)	• Whole class games (single session) • Games in small groups (single session) • Games played lasting several weeks, where a round is played either weekly or at less frequent intervals. The time taken playing a round in class may be only a few minutes. Much of the playing/negotiation can take place outside the class.
Computer lab session (using instructional software, such as WinEcon or the Virtual Economy, or using data sets and/or statistical packages: see Economics Network site for details of software)	• Tutor led. Tutor introduces the software (maybe using a data projector) and then students work on an assigned task, individually or in pairs. • Tutor supported. Students work at their own pace and the tutor is available or provide support of the student is stuck or has questions.
Virtual seminar (distance-based learning, using chat room facilities of a virtual learning environment/conferencing system, such as Blackboard or Moodle: students contribute from a terminal on site or at home)	• Tutor led, real time. Students log on at a particular time and then the tutor leads a debate, with students contributing on-line. Can be done anonymously, with students identified by number or fictitious name. Seminar can last for a normal period of time. • Tutor led, open time. Student log on when they please and contribute postings to a debate. • Student led (no tutor present): either real time or open time. Tutor can come online afterwards to post comments.

Table 1	
Suggestions for small and medium sized group sessions	**Activities**
Video (preferably not longer than 20 minutes)	• Students then prepare answers to set questions and report on them. • Quiz on video material • Debate (whole or small groups) on issues raised. Students can be allocated specific roles.

While implementing many of these activities may seem daunting at first, they are likely to improve student learning immensely. In addition, they are fun both to organise and perform in the classroom.

3. How to approach small group teaching

As suggested above, all learning should facilitate student engagement and ensure students construct and design their own learning path. In small group settings, instructors have a variety of options to achieve this goal and the choice of tools may depend on the particular setting. A small-group 'lecture', which introduces new material will demand a different approach to a tutorial where the main aim is to practice and apply what has already been learned. Furthermore, instructors may work differently with a 'very' small group of below 10 people to a group with 30 students. Section 4 discusses different modes of teaching for small groups of students.

3.1. The role of the instructor in small group teaching environments

> "Teachers should guide without dictating and participate without dominating."
>
> C.B. Neblette

It is often tempting as an instructor to plan a small group teaching session where the onus is always on the tutor: maybe to revisit material covered in large group teaching sessions and then to provide answers to questions set for the students, or to even 'lecture' new material to the students. In fact, if we as instructors always talk, there may also be less risk of students asking challenging questions. As highlighted elsewhere in this chapter, students may also be temporarily satisfied that the onus is not on them, as this means less effort for the student. However, students are highly unlikely to engage properly with the material taught in such a tutorial, and are unlikely to experience deep learning. To facilitate such learning, the role of the tutor is instead to organise the session, facilitate discussion and learning, and hopefully to inspire students.

One way to do this is to demonstrate to students what made us fascinated you in economics, motivating you to teach and research the subject. Instructors need to plan learning activities which make students responsible for learning. Such activities may be discussions, group work, student presentations and many more, which we discuss throughout this chapter.

A recurring theme of this chapter is planning: to facilitate interaction and learning requires careful planning. Tutorial activities and stimuli for the students should be planned, but at the same time sufficiently flexible to accommodate where the students' learning journey leads. This is demanding for the instructor, as the overall coherence of the session must also be preserved. In this sense, the role of the instructor is one of a moderator who provides guidance and structure to the

students' learning journey. Alongside activities and stimuli, instructor may need to present some material, but this should not be the principal focus of the tutorial.

The instructor's role is an incredibly important one. For students to willingly engage in the planned learning activities the instructor organises, they must feel at ease so as to be comfortable contributing. The instructor's role extends to providing helpful comments and suggestions, encouraging students to work effectively with their peers; this might require the instructor to lead initially and then increasingly facilitate student discussion and student contributions. The objective is for students to have the confidence to ask questions, not only of the tutor, but of each other, and of the economics discipline. The instructor's role is certainly not easy, but it can be immensely rewarding.

Finally, tutorials are ideal for fostering students' transferable skills, including the ability to think critically, work effectively in small groups, present and articulate their ideas. The lack of such skills is a recurring complaint of employers when hiring economics graduates (for example in the Economics Network Employer Survey).

3.2 The first session

Even for experienced academics, the first teaching session can be daunting – especially where the tutorial is interactive and students are unfamiliar with the instructor and potentially each other. Ultimately teaching is partly a performance, and we need to appear confident even if we do not always feel so. However, confidence needs to be balanced with approachability. Students should always feel that they can speak to lecturers and tutors.

Students expectations about the module and the instructor are largely formed in the first session. Moreover, student perceptions display inertia - it can be very difficult to change students' views about the module later on. During the first class, the instructor can set the tone and familiarise students with the 'rules of the game'. When done properly, the learning atmosphere is then more likely to remain positive throughout the term. Therefore, the first session needs to be planned carefully. The first tutorial should ideally be scheduled early on in the term. In fact, a session during the first week can be particularly useful as little material may have been covered yet and time can be used to get to know each other and create a good learning atmosphere.

Things to include in the first small group teaching session (see also Appendix 1):

1. It seems a basic point but do not forget to introduce yourself; not only your name, but also contact details, location of your office, hours when you are available for student consultations etc.

2. Ask students to introduce themselves. Wherever possible it is immensely helpful to learn student names. Students appreciate it, but it may be particularly helpful if a student has problems. By knowing a student's name you can more easily access further support services or resources for a student.

   It will be useful to find out more than a student's name. Student cohorts can be very diverse. There may be students in a class studying for different degrees, with different previous qualifications, very different motivations for taking a class etc. Hence, it can be invaluable asking students about, for example, the degree that they are enrolled on, their quantitative background etc. This can be done verbally, using Personal Response Systems (clickers) or software that allows students to answer questions using mobile devices. If technology is used, this can serve as an introduction to technology that will be used in subsequent tutorials. It can also be done by a short activity, which introduces students to the active learning tasks they will encounter in the module.

Teaching Tip:

Consider asking students to interview their neighbour and then present their peer to the class. This way students already practice presenting and speaking up, something which you as an instructor will expect them to do on a regular basis.

3. Students should all receive information on their modules, in the form of a module handbook. However, it may still be very valuable to spend a few minutes checking that students know where to get the learning resources they need for the module, understand the structure of the module, as well as how and when they will be assessed.

4. Finally, set expectations of what is required of students and what will happen in sessions more generally. If it is not acceptable to come to class late, then indicate this. Similarly, tell students if you expect them to turn mobile devices off. Most importantly, tell students to what extent you expect them to participate in class. Prepare students for group work, for giving presentations, or for coming to the front of the class to discuss answers on a white board. Make clear to students if you do not plan on covering all material, for example all questions on a question sheet or everything from the book chapters, in every session. You should make sure that students know what they are expected to do on their own and whether you will focus on only the challenging content or questions. Crucially, make clear to students what work they are expected to do before coming to the session, as well as after.

Teaching Tip:

Having noticed that students increasingly were forgetting to turn their mobile telephones off or turn the ring tone to silent, invariably leading to disturbances when a telephone rings, I established a rule: if anyone's mobile (including mine) rings during class they have to bring sweets / chocolate / biscuits for the rest of the group to the next class. I have found that I do not even need to police the rule as students themselves are very keen to identify fellow students who should bring treats.

3.3. Planning small group teaching

For every teaching session, assign some time for introducing the session and ending it. Even though tutorials often seem too short, we must take time to introduce a subject, check that students are comfortable with the concepts to be discussed, and make sure that students are clear about the link between lecture and tutorial content and how they complement each other.

"It looks as if there is not much communication between lecturer (module organiser) and class teacher. Often the class teacher is unaware of the progress made on the module or of what and how some material has been taught in the module."

As highlighted above, students complain if they see no link between lecture and tutorial content. However tempting, avoid 'diving into' solving problems or delivering core material, even if concerned about limited class time. Similarly, always end by summarising what has been covered, any follow up work expected or that might be beneficial to students, and if possible, linking material covered with the material to follow in the module.

Generally, take care to explain to students what is expected of them, not only during a teaching session, but also before and after in terms of work. Also try and provide an appreciation of the progression of material covered in the module. This can also be done via an online learning environment such as Moodle or Blackboard. At university there is a much greater onus on the student to engage in independent learning – something students may not be aware of or understand what this entails, especially first year undergraduates whose learning will have been more closely guided prior to university. The first class may be a particularly crucial teaching event where one can use some time to introduce this.

Individual teaching sessions are part of the larger learning journey students embark on. Be it a lecture, a class session or an online session, the question arises how the individual teaching sessions fit together.

Teaching Tip:

Do not view small group teaching sessions as stand-alone events. Rather, consider how they fit with, and support, previous and future teaching sessions in the module and communicate this to students.

When thinking about sequence, first think about the aims of the individual teaching session within the larger context of the module (i.e. does the session introduce new material, does it take up ideas from the last lecture(s), etc.) and then consider what students should do before and after the tutorial. A guiding question when planning teaching should always be what students do before, during and after the session.

Table 2 summarises some ideas about student activities before and after the session.

Table 2

Student Activities	
Before class/seminar	**After class/seminar**
Check understanding of lecture material	Extend beyond core reading
Make notes on further reading	Check notes are complete on a topic
Attempt relevant online quizzes	Check question sheet answers are complete
Prepare answers to set questions	Collect relevant past examination questions
Consider applications / examples	Attempt past examination questions
Formulate questions for the instructor	Check understanding of how a topic ‘fits’ into a module

3.4 Teaching in a team

As well as understanding and explaining how the different teaching sessions and topics in a module 'fit together', there is also a complex set of relationships underpinning any successful module. These include the relationships between the various staff involved and the relationship between staff and students. When teaching on a module, check where responsibilities lie. Is the teaching shared between lecturers and tutors? What is the aim of the small group sessions? Who is to decide such aims? Do we use question sheets for the tutorial, and if so, whose responsibility is it to produce such material? Will solutions be provided by the lecturer and are those given out to students? Who has responsibility for marking coursework and final assessments? To answer such questions, it is important to get in touch with colleagues to discuss responsibilities.

For some of the tasks related to small group teaching, there will be administrative support, and it is important to enquire about how to share the module administration appropriately. For example, you may want to enquire whether student attendance monitoring is the responsibility of the tutor, or automated in some way, such as with a student swipe card system. Similarly, find out who has responsibility for following class missed attendance, who has responsibility for inputting student marks etc.

Instructors often collaborate with other tutors, especially for large undergraduate modules. While inspiring and potentially a lot of fun, teaching with others can also be a demanding task. Subsections 3.4.1 and 3.4.2 explore the possible relationships with other instructors that may arise.

3.4.1 Working with fellow tutors

If you are coordinating a team of tutors consider ways to ensure they get to know each other and meet regularly to discuss teaching and assessment matters that may arise. You may even schedule regular meetings with all instructors where you discuss the approach taken in the upcoming tutorial. While it is important that teams meet with each other, it is equally vital that seminar instructors have sufficient opportunities to meet with a module convenor to discuss any issues arising.

Consider the length of time colleagues have to prepare materials. For example, if small group teaching is designed to support and follow up on large group (lecture) teaching, check that staff always have sufficient time to work through lecture resources before and to prepare materials for the small group sessions. Decide whether guidelines need to be given to staff as to how long in advance of a small group teaching session all the materials need to be made available to staff, and how these materials will be made available, for example via email, the VLE, on paper

etc. Colleague should not be expected to prepare for small group teaching the evening beforehand, because of delays in circulating materials.

Also think about how to coordinate marking across small teaching groups to ensure consistency, both for marking that takes place regularly, such as the marking of formative assessments including answers to question sheets, as well as the marking of summative assessments for example examinations, essays and dissertations. An initial meeting before teaching starts may actually be time saving, so that all relevant colleagues agree on a marking scheme and how to implement it, rather than moderating very different mark distributions after marking has been finished. Alternatively, consider asking colleagues to mark a sample of work and then agree marking conventions, rather than waiting until all the marking has been completed.

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4. Alternative forms of small-group teaching

Broadly speaking, economics instructors will focus on either technical material (i.e. the mechanics of a model or derivations) or engage with interpretive material, based on case studies, research papers, policy reports etc. One may encounter both aspects in the same tutorial, where technical material is introduced within the context of research papers or case studies. More commonly, however, there may be more of a separation. While knowledge construction and student engagement serve as guiding principles for both, instructors may adopt slightly different pedagogical approaches in each settings.

Generally, tool-based, more technical classes may have practice and repetition as an important element in them, while interpretive sessions may focus more on critical discussion.

Of course, students should be engaged in both settings, but instructors may choose different activities to facilitate this.

This section focuses on tips and techniques for planning tutorial teaching in a number of different settings: teaching problem sets (subsection 4.1), research based teaching (subsection 4.2), computer lab teaching (subsection 4.3), revision classes (subsection 4.4) very small teaching groups (subsection 4.5), small group lectures (subsection 4.6) and the use of classroom games (subsection 4.7).

4.1 Teaching question-based problem sets (quantitative, model-based and interpretive)

Most commonly economics tutorials provide students with the opportunity to develop the knowledge gained in lectures. Each tutorial relates to particular lectures and students are required to prepare answers to a set of problem set questions either in advance or during the session. Such problem sets are common for technical material, including model work and derivations. However, they can also be used for interpretive material, where essay-type short answer questions are set on – for example - an assigned reading.

It can be tempting for a tutor to simply go through the answers to the problem set questions on the whiteboard at the front of the class. Students often seem to favour this, as the onus is on the tutor to provide solutions, which is what students might be ultimately after. There are several problems with this approach. Pedagogically, learning happens best when students construct knowledge. As discussed in section 2, retention rates and understanding remains low when students copy results without attempting the questions themselves. Furthermore, this is a very expensive mode for just ‘giving out sample solutions’. In fact, printing solutions and running an office hour in case a student has questions may be an easier way of achieving

the same goal. In addition, if the tutor presents the answers to all the questions set during the teaching session, students have less incentives to prepare the work prior to coming to class, or even to attend class. Interactive and engaging teaching sessions, by contrast, encourage students to prepare for sessions in advance, will help students identify material that they find difficult, will facilitate 'deeper learning' and thus improve recall at a later date.

When planning a problem-set based teaching session, work through the question sheet and consider which questions to cover in the session. Do not feel under pressure to go through every question but if you decide not to discuss particular questions make sure you explain to the students why you chose not to cover certain questions. Potentially coordinate with other tutorial teachers and discuss the fact that you will not cover all aspects with the module leader. However, also be prepared to be flexible. Ask students which questions they found most challenging, either during class with a show of hands or online voting or in advance of sessions; this information will help you prepare. Plan approximately how much time to spend on different activities in the session. For example, you may want to allot time for students to check answers with each other, to prepare answers to present to the rest of the group, time for students to play a short, illustrative economics game etc. Consider whether sessions can be planned so that there is a mix of individual, small group and whole class activities, so as to keep students engaged.

> "Spoon feeding in the long run teaches us nothing but the shape of the spoon."
>
> E.M. Forster

Evidence (for example, see Springer *et al.* (1999)) points to benefits for students working in small groups, The question therefore arises how we can get students to work effectively in such settings? In the following boxes we share some ideas on possible approaches. Remember, for any interactive teaching session, it is vital to plan carefully in advance.

Group work:

Ask students to work in small groups - each group may work on a different question - with each group expected to present their answer to the rest of the class. To save time, the student groups can be asked to prepare their presentation prior to the session so that minimal class time needs to be spent by groups. If presentations on different questions are prepared in advance they can be uploaded to the Virtual Learning Environment (VLE) to create a bank of student answers. However, the answers should be checked by the tutor for accuracy before being uploaded.

Once students gain confidence from presenting their work in groups, it is easier to ask them to contribute individual answers.

Student Discussions:

Especially effective for interpretive sessions, this is a good mode of getting students to reflect on different sides of an argument. Students could be split into two groups (there are several ways of forming groups and you may wish to mix them up) and each group asked to reflect on arguments for a specific position. Make sure students use economic evidence to support their arguments. It is vital to ensure the level of the discussion is appropriate to the academic setting. Let students prepare a 5 minute speech to formulate some of their arguments and then start the discussion. During the discussion, your role is one of moderator. You may allocate speaking time, ask groups directly how they would counter a specific argument, ask clarifying questions etc. You may also stop the discussion for a short time to review some economic arguments.

Teaching Tip

For example, a discussion about the appropriate amount of abatement to combat climate change may be put on hold when students talk about discounting. You as an instructor may review the concept of discounting before getting back into the discussion. It is your role to clearly define the learning outcomes (the concepts and arguments the students should grasp) and moderate the session to achieve these.

Role Play:

Role Play could be a variation of the student discussion. In particular, you could assign specific roles to students.

Teaching Tip

In a discussion about environmental damage after a large oil spill I once [u1] let students discuss ways of estimating compensation payments to local fisheries. I assigned the role of the oil company, an economist, an environmentalist, and the local fishery to different groups and 'played' a discussion about the appropriate compensation payments. The exercise enables students to reflect about different approaches to calculate economic value and that the choice of method and aspects to include may strongly depend on personal preferences.

Student Presentations:

You may ask your students to prepare presentations on a specific topic or a research paper, where you use the questions in the problem set to guide the flow of the presentation.

There are several advantages to letting students present problem set answers. First, the problem set questions can be micro-tuned to assure a specific flow of the presentation. Second, by explaining to others, students can show whether they have really grasped to concepts and workings of a model. Third, the students gain transferrable skills important for the workplace. In principle, student presentations can be used for both interpretive and more quantitative material.

Students can either present answers by themselves or in small groups. In the first case, students may be asked to prepare material, for example read a research paper. A first question could be to summarise the article in a few sentences. One could then pick out some specific concepts and questions and let students reflect on these. For more technical material, one could ask students to prepare a short presentation of a specific technique, explain the steps of a derivation or use a graphical model to run through a specific economic argument.

As an instructor, you want to make sure the whole group is engaged, rather than one individual. This can be easily achieved by stopping the presentation and asking the group questions like: “Why did the student do a specific step?”, “What is the potential problem with this approach?” or “How else could one have answered the question?”. The structure of a problem set may also lend itself to mixing up presenters.

Teaching Tip

Instructors often claim it is difficult to get students to the board. One way of achieving this is to ask students first for an answer. If the answer is correct, congratulate the student and ask if she/he could write it up on the board. Once in front of the class, the student can be asked another question.

4.2 Research-based teaching: projects and case studies

In research projects, students can embark on their own research journey and can apply what they have learned to real world scenarios. Following the constructivist learning approach, research-based education enables students to create their own knowledge and gives them the opportunity to guide their own learning journey. Research-based education can be implemented as an individual or group task and may take the form of an essay, an online project (i.e. a Wiki) or result in other outputs, such as a video.

Students may complain that they cannot see how the research-based tasks links to the main lecture material. Small group seminars are an ideal place to let students work and discuss their ideas and get guidance and feedback from the instructor.

Often students just need a few suggestions or assurance that their work is going in the right direction, or maybe just a reminder about a specific link to the lecture material so that they can continue their work.

Small group sessions can be used to facilitate students' learning alone or in a group. While costly, individual feedback is most valued by students, so spending some time to guide the learning process is well-invested time. In this scenario instructors may give a short introduction about what is planned for the session, maybe showcase some particularly good work in progress, discuss some general feedback comments which apply to most or all cases and then speak to students individually, while they are working on further developing their projects. Students may also present their ideas to their peers while instructors walk around, listening into conversations, giving customised feedback or asking questions to help students progress.

It is important to frame such student-led sessions with a beginning and an end. To finalise the session instructors may share some of the questions which emerged in the discussion, ask students to present some of the ideas they came up with, and provide some general guidance about how to proceed in their work.

Teaching Tip

In one of my modules students were asked to create a Wiki on income and commodity taxation around the globe. They first individually collected information about the tax system in an assigned country. Then students worked in groups of around 8 to write an online comparison of the tax systems of their assigned countries. I used small group sessions to facilitate student discussion, showcase especially successful work and to guide their next steps. This feedback was vital for the students to progress successfully and to understand the link between their project and the module material more generally.

4.3 Computers in small group teaching

Small group teaching environments may also be used to enable students to work with IT. You may find yourself leading a computer lab seminar using software packages such as STATA, R, Mathematica, Maple, or Excel. Increasingly, universities are investing in trading rooms such that students can become familiar with trading platforms (Sharma, 2015). The focus of such sessions is that students work through material to familiarise themselves with the software package. Learning by doing is crucial in these kind of classes, with students working individually, pairs or small groups to work through a specific problem.

Problem sets or pre-prepared notebooks, where students are guided through specific material are ideal for these kind of seminars. Most software packages

enable the instructor to pre-prepare notebooks and do-files. This may have the advantage that students can work through a skeleton where some of the tasks are already prepared and examples are given, instead of having to programme everything from scratch. In such a teaching environment, the instructor may want to motivate the session at the beginning, then let students work through parts of the problem while walking around and answering specific questions. After 15-20 minutes it is worth discussing the material with the whole group and resolve queries before giving students' time to work through the next part individually again. A well-prepared data file would allow students who did not manage to complete one task to be still be able to continue and work on subsequent tasks.

Teaching Tip

In an Environmental Economics module I used seminars to expose students to work with Mathematica and simulate models to better understand the interaction between the economy and the environment. I pre-prepared Mathematica notebooks that guided students to first understand the code, add to it and amend it and then interpret graphs and model outcomes. Students worked through the material with their neighbours but could ask me questions throughout the session, at which point I would go to their computer to help. Four to five times during the two hour session I discussed parts of the material in plenum. As students worked through the material themselves they experienced that things did not always work as expected. The programming code entered may be incorrect, or the output not intuitive. This is when students must stop and rethink the model set-up. It is the failures and struggles that make students learn; the tutorial environment is ideal to support this learning process.

4.4 Revision classes

Revision classes need to be prepared carefully. It is tempting, especially as teaching draws to a close, to think that all that is required is to turn up and answer student queries without divulging too much information about the forthcoming assessment. However, revision classes require careful planning and preparation to ensure that students gain as much benefit as possible from them.

First, consider if there is any information (other than the topics of unseen assessments that students invariably ask for!) that can usefully be provided to students. Examples include:

- A brief overview of the overarching structure of the material covered in the module

- Guidelines as to the format of a forthcoming assessment and any information that will be provided, for example an equation sheet, copies of statistical tables etc.
- Past assessment questions
- Specimen past answers
- General assessment feedback documents that were circulated to students who sat the assessment or examination previously
- Module or assessment specific marking criteria
- Details of the marking process
- Resit provision

We often assume that students are informed about the format of assessments and marking criteria, but we should not lose sight of the vast quantity of information that students receive in paper and/or electronic formats. When providing information, such as the items suggested in the list above, also set aside time to talk through the documents, and give students an opportunity to ask questions. For example, marking criteria statements may be easy to understand for an academic or PhD student, but challenging for students.

Students may not be aware of the rigorous marking procedures in place in universities. It can be reassuring to students to know their work is marked by one (internal) marker, with at least a sample marked by a second (internal) marker, with a sample also being looked at by an external examiner. Further, that attention is given to the distribution of marks across a cohort and any papers that receive marks close to classification borderlines are given particular attention at multiple stages of the marking process.

Check whether any past scripts have been saved and whether former students gave permission for anonymised answers to be circulated. Students often find it enlightening to see examples of good and weak answers by former students. By seeing examples of high quality work students can be inspired, while both stronger and weaker past work can be evaluated against marking guidelines to help students appreciate what is expected of them.

Consider whether you would like students to undertake any specific activities in advance of a revision class. Revision classes can be daunting for less experienced staff as students may ask questions from across multiple weeks of a module. To help both staff and students prepare, students can be invited to submit questions to be covered in a revision class in advance. Similarly, students can be asked to prepare draft answers to previous years' questions.

Teaching Tip

Consider using an online forum to collect questions. In such a forum students can also answer questions of their peers. This will facilitate student discussion and

enable students to explain material to others, which is the ultimate check of whether the material has been truly understood.

Ideally a revision class should remind students of the overall narrative of a module and provide students with an opportunity to clear up any niggling doubts about material covered, while providing an opportunity for students to appreciate what is required for a first class / distinction level answer. Revision classes should be interactive with lots of opportunity for students to ask questions and contribute.

Teaching Tip

A competitive element can also be introduced. Asking questions using personal response systems or mobile devices can help students discover where they may have gaps in their knowledge. Similarly, a team game based on 'Noughts and Crosses' can be used to encourage students to answer questions and also set questions for another team, in so doing offering an additional opportunity for students to revisit their module notes. This game is outlined on The Economics Network website:

https://www.economicsnetwork.ac.uk/showcase/elliott_0x

Consider whether advice can be given as to specific activities students should undertake after the revision class. Students know they need to learn material but may less clear about how to learn. A student may take in little from reading a text book for even an hour, and may need suggestions as to how to vary their revision activities. As such, consider whether recommending any of the following:

- Diagram drawing practice
- Self-testing on frequently used mathematical or statistical methods
- Past question practice, maybe writing essay plans rather than full essay answers
- Reading relevant recent newspaper articles for illustrative examples to support answers
- Revising with other students
- Discovering academic references beyond those recommended on module reading lists.

Finally, do not forget to advise students on where they can receive further support when preparing for assessments. When will staff be available to see students in their offices? Will a VLE discussion board continue to be monitored? etc.

Teaching Tip: Reviewing previously submitted work

One activity that students find hugely beneficial is reviewing work previously submitted by students. This could be work submitted for module assessments or answers to past examination questions. You must remember to get students'

permission to use their work and ensure it is anonymised. Give examples of very good and also weak answers. Students can be asked to read answers in advance or in class, and then asked as a group to comment on the strengths and weaknesses of the answers, offering suggestions as to the appropriate marks. Consider doing this in conjunction with the marking criteria. The resulting discussion is often very lively and revealing to students, highlighting what is expected of them.

"I found the evaluation of previous projects extremely helpful in understanding what was wanted from me - it would be great if other courses took this up!"

4.5 Very small "small group teaching"

You may find yourself working with a very small group of people, perhaps 2-4 students, either in a formal tutorial setting or in office hours. The dynamics of such sessions are likely to be very different. As instructor you have the chance to monitor very individually a student's progress and consider how to support the student in her/his learning journey.

These sessions work best if students pre-prepare material, for example an essay or problem set or engage in some independent research and write up a short summary, which can be submitted to the instructor before the actual teaching session. This way the instructor can read and target the session more precisely to the students. These sessions should be interactive, with the students talking most of the time and the instructor steering the discussion with the right questions.

Such sessions can be incredibly inspiring for students as they feel they can directly benefit from the expertise of the instructor. But at the same time it can be daunting as small group sessions are harder to prepare for and the instructors' knowledge and confidence in the material is directly tested. To avoid difficult moments, looking at work in advance of the sessions and asking students if they had particular problems with the material may help.

Teaching a very small number of students can be beneficial for the weakest students as well as for the brightest students in the group, as the instructors can find out where exactly a particular student struggles but at the same time really push the able student to intellectual heights. Furthermore, instructors can stimulate a learning environment where peers can learn from each other and beneficial peer effects are maximised.

Teaching Tip

With a very small group of 2-4 students, why not ask one student to explain a particular complex concept to the other student(s)? Or let one student discuss a possible viewpoint while the others need to argue against it?

4.6 Small group lectures

If you are teaching a very specialised optional module you may only have a few takers each year and will end up with a group of only 15-25 students. Lecturing to a small number of students can be a real treat, as many of the interactive teaching modes we suggest in this handbook can very easily be implemented.

The aim is again to provide an environment where students create their own knowledge and small groups lend themselves to interactive teaching modes, such as flipped classroom teaching, where students pre-prepare material from books, videos and other resources, while the instructor uses the time in class to introduce applications, discuss questions and more demanding material or test understanding.

Instructors sometimes question how students will be able to understand the complex material without the instruction of the lecturer, but there are excellent textbooks where much of what we teach is available, and which can provide a good first read. In addition, there are many videos which clarify concepts available online. Instructors may also film their own videos or can use lecture recordings from previous years to make material available to students before the lecture. The valuable and expensive class time can then be used much more interactively. For example, instructors could apply the material to current issues, or clarify especially difficult content.

Teaching Tip

Instructors could open a twitter feed or message board where students post questions about particularly difficult material before the lectures. A part of the lecture could then be used to focus on these questions, before covering some applications.

4.7. Small group teaching and games

How long students can typically concentrate remains a contentious issue, but there is a consensus that we need to vary our teaching methods and the stimuli that students receive in class to ensure that they remain engaged and focused. A fantastic way to break up a class with a short activity is to use a game or experiment.

There are a number of advantages: besides remaining engaged students may remember a theory or concept better if it is demonstrated in a game/experiment. Games/experiments are typically fun to use in the classroom, and outcomes can stimulate discussion as to the extent to which theories are in line with individuals'

real-life behaviour and economic decision making. See Guest (2015) for a discussion of the benefits of using games/experiments in Economics teaching.

For example, Dictator and Ultimatum games are very quick to implement in classes and work particularly well with small classes:

https://www.economicsnetwork.ac.uk/showcase/elliott_gametheory

These games also provoke discussion as to whether economics agents are actually selfish profit-maximisers as neoclassical economics often assumes. A favourite Microeconomics game that can be used with small or large class sizes is the Tennis Ball game that demonstrates Diminishing Returns to a Variable Factor of Production:

https://www.economicsnetwork.ac.uk/themes/games/tennis%20balls

Further examples of Microeconomics games appropriate for small group teaching can be found in, for example:

https://www.economicsnetwork.ac.uk/showcase/guest_games

https://www.economicsnetwork.ac.uk/showcase/guest_experiments

See also Guest (2015) for a detailed exposition of the Public Good game.

There is a section of The Economics Network website devoted to the use of games/experiments in Economics teaching:

https://www.economicsnetwork.ac.uk/themes/games

Many of the games are suitable for small group teaching or can easily be adapted for it. Further, the games are not restricted to Microeconomics / Game Theory applications such as those highlighted above, but also encompass Macroeconomics; Development Economics; International Economics. Instructors can enjoy exploring the resources available.

5. Self-reflection and evaluation of small group teaching sessions

Annual teaching appraisals are standard across UK universities. Hence, instructors should expect someone to observe their teaching at least once a year. However, regardless of the extent to which formal teaching appraisal schemes are imposed, watching how others teach and obtaining constructive feedback on one's own teaching is invaluable.

Observation opportunities

1. Instructors may ask to observe other instructors, particularly those with excellent reputations for teaching. Observing others gives us an opportunity to see what 'works' for colleagues and provides insights into small group teaching methods that are effective. Yet, we should also be aware of our own strengths and weaknesses and have the confidence to recognise that different approaches may suit different tutors.
2. Ask trusted colleagues to observe and provide feedback on your own teaching, even outside of formal teaching appraisal processes. Colleagues can often offer valuable suggestions, and through observing may also be able to confirm whether students really are engaged and working in the small group sessions.
3. As well as observing other instructors, it is often very helpful to observe lectures that are given in modules where lectures are accompanied by tutorials. This gives an incredibly valuable insight into how the students are taught in the large class sessions; the pace of delivery, level of technical difficulty and level of detail of coverage of material. This can provide real insight into the student experience with instructors then able to adapt small group sessions so that students gain maximum benefit from them. Note that with greater use of lecture capture in universities across the UK it is often now easier to watch lectures at a time convenient to the tutor as they can watch a recording of the lecture rather than attending the 'live' lecture. However, there are benefits from attending the actual lecture as it is easier to gauge how students respond to the material covered when experiencing the lecture alongside them.
4. 4. With greater adoption of lecture capture in universities across the UK it is now also possible for instructors to watch recordings of their own teaching to review their own performance. This can initially be very daunting but hugely beneficial.

In addition, all universities survey students at least annually to obtain module level feedback. This feedback may only be sent to module leaders, but make sure that you see it so that you can reflect on successful and any less successful aspects of a module, your own input into the success of a module, and measures that you can

take to improve your teaching. Common issues that are raised about the quality of small group economics teaching either when colleagues are observed or in module evaluation feedback include dissatisfaction that all material is not covered in the class; complaints that sessions are not interactive and that the tutor 'talks at the class'; a related issue is that classes are dull; and that feedback on work submitted is inadequate.

Teaching tip:

At the end of every module think about identifying at least one thing you can change to improve your teaching on that module in the future. We should all be continually trying to improve the quality of our teaching, even if just in small ways.

Finally, as well as talking to Economics colleagues, observing them, asking them to observe you, if you are still concerned about the quality of your teaching all UK universities have a staff development department. This department will be able to offer support.

6. Further resources

Economics is a fantastic subject to teach as it helps us understand so many aspects of individual consumer and firm behaviour, as well as highlighting the inter-relationships between the many important macroeconomic concepts. As such, there is a wealth of resources instructors can draw on, either to clarify content, to provide examples, to stimulate discussion or to simply break up a teaching session to ensure student concentration is maintained. In particular, teaching with films and videos has become increasingly popular.

Various media can offer particularly valuable resources. As well as a vast array of popular books being published in recent years on often entertaining applications of Economics, news and media are also full of material which can be used for teaching. The resources could be used in class sessions as well as small group lectures and may be the basis for a flipped classroom teaching scenario and we recommend considering using some of the following resources in your teaching:

YouTube videos	There are lots of videos, television and film clips that you can find to illustrate many aspects of Economics. ○ https://www.youtube.com Have fun searching!
Research article on Economics as portrayed in films	Leet, Don, Houser, Scott (2003) "Economics goes to Hollywood: Using Classic Films & Documentaries to Create an Undergraduate Economics Course", *Journal of Economic Education*, volume 34, number 4, Fall, pp. 326–32. DOI: 10.1080/00220480309595226
The Economics of Seinfeld	http://yadayadayadaecon.com/
News stories	• The Economist • Newspaper articles • Television news
Blogs on Economics	For example • http://freakonomics.com/blog/ • http://www.economistsdoitwithmodels.com/
The Stand Up Economist	http://standupeconomist.com/videos/

CORE 'The Economy'	CORE offers an alternative, free to access, set of first year Economics Principles teaching resources. There are several videos and other multimedia content in the e-book. http://core-econ.org/
Films that support teaching Mathematics and Statistics for Economists	• http://www.metalproject.co.uk/METAL/Resources/Films/index.html • http://economicsnetwork.ac.uk/statistics/videos
For a general discussion on the use of media in Economics teaching see:	https://www.economicsnetwork.ac.uk/handbook/media

7. Conclusion

Small group teaching in practice often lacks behind its potential. Working with only a small group of students opens up various possibilities to create a learning environment where students can follow a more individual learning journey and actively engage in the learning process. This mode of teaching can be extremely fulfilling. At the same time it is demanding, as interaction also means unpredictability. Planning small group teaching sessions carefully is vital, even if one teaches in a fairly standard form using for example question sheets.

The chapter has suggested various activities to increase interactivity in the classroom. There are of course many more resources out there reflecting on small group teaching or providing material to be used in small group teaching. Our aim is to suggest some teaching ideas that can make small group teaching sessions more interactive and student focused. Readers may also want to engage with the wider literature on small group sessions such as Strawson et al (2013) or Tiberius (1999).

While in large classroom settings instructors may find it difficult to know all students' faces and names, small group sessions can help to bring the learning journey to a more personal and individualised level. This is not just beneficial for the learning outcomes of the student but also a much more fun way to engage with students, for hopefully both the student and the instructor.

Appendix 1: Top Tips for making small group teaching more effective

Start off on the right foot	by getting to know your students' names; encouraging them to learn each other's names; contracting; establishing ground rules; setting objectives and orientating them to the module.
Help students to prepare for discussion	by briefing seminar leaders; helping them to prepare both the content and the process; ensuring they get helpful feedback; encourage them to evaluate their own performance.
Use 'structures' to manage group learning	by arranging the furniture in the room suitably; breaking up the group, breaking up the tasks; using sub-groups (pairs, triads, pyramids, debate etc).
Encourage students to participate	by using structures (e.g. rounds, brainstorming); using students' interests; using students' questions; asking different kinds of questions; managing the vociferous students effectively.
Encourage students to take responsibility	by distributing group roles; encouraging students to work alone or in groups in class; leaving the room; asking students to present their work; establishing and supporting self-help groups; awarding group grades.
Evaluate the work of the group	by encouraging group self-monitoring; having group observers; checking up on group process; tape-recording the session; consulting the group.
Use written material	such as posters; group charts; students' notes; handouts; essay preparation; open-book tutorials.
Help students express their feelings	by dealing with 'what's on top'; self-disclosure; praise and encouragement; managing closure.

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