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## Key aspects of teaching and learning in economics

Liz Barnett

### INTRODUCTION AND AIMS

Economics in the UK is taught both in the context of single Honours degree programmes and within a wide range of joint degrees. In both cases, programmes are modular in nature, often with limited integration or cross-reference either between the main strands of economics (i.e. micro- and macro-economics) or between economics and other subjects in joint degrees. Single Honours programmes focus heavily on the development of students' theoretical and technical abilities. Joint programmes do not have the space or time to enable students to achieve such a sophisticated understanding of the discipline, and will tend to place more emphasis on applied and vocationally directed aspects, often with a bias towards the application of economics to business, accounting and finance. This chapter focuses on the single Honours context, as the business context has already been addressed in Chapter 24.

As a social science, economics will often be studied alongside disciplines such as sociology, anthropology, politics and psychology, as well as the business, accounting and finance subjects already mentioned. Readers may wish to refer to Chapter 20 in order to gain a broader understanding of the different approaches to learning and distinctive disciplinary styles to which their students may be being introduced alongside economics.

Increasingly, the teaching of economics is based on the use of analytical models that require a high level of understanding of mathematics, where in the past the subject was more discursive and text-based. Not all students are aware of this feature of economics programmes, which in recent years has led to student movement out of the discipline during the first year. Like other disciplines that require good mathematical ability (see e.g. Chapter 16), economics departments have noted declining mathematical abilities in their incoming students – an issue that is picked up later in this chapter.

The chapter will build on the basic aspects of teaching and learning in Part 1. In particular it will:

- expand on approaches to teaching and learning support which are most commonly associated with economics teaching: lecturing, the use of technologies in support of learning and small group teaching;
- summarise common approaches to assessment in economics, and explore the introduction of transferable skills into assessment;
- explore some emerging issues for teachers in economics, including addressing concerns about the mathematical ability of economics students;
- overview support for graduate teaching assistants by course tutors.

## CONTEXT

Economics is an attractive degree to students, as alongside mathematics and law it offers students the prospect of high-earning graduate employment. This may give lecturers some interesting challenges in their teaching – as they face a body of learners who may be focused on what their discipline can offer them in the future rather than having an intrinsic interest in it as an area of study. On the other hand, this strong extrinsic motivation can be an effective motivator as students are aware of the need for good grades to secure the most lucrative jobs. This motivation can be harnessed particularly effectively where students take on internships or work placements during their studies, and where lecturers are able to highlight how models and techniques are applied in the ‘industry’. Finally, lecturers need to keep in mind that many economics graduates, as in other disciplines, will end up working in entirely unrelated walks of life. It is consequently important to draw out more general skills and capacities the degree can foster. The recent update to the Economics Subject Benchmark Statement (QAA, 2007) highlights a number of these skills which include such concepts as opportunity cost, incentives, equilibrium, strategic thinking and numeracy skills.

Over the past ten years, the annual intake into single Honours degrees in economics from UK/EU students has remained relatively stable. However, there has been a significant increase in non-EU overseas students. This raises new challenges for lecturers in terms of ensuring that students who are working in English as a second language are effectively supported, implying the need to use examples that work effectively in an international context when working with students who may have very different prior learning experiences and expectations.

Across the UK, economics programmes have a relatively similar design, starting out with core courses that address fundamental economic principles and that enable students to develop the basic tools of economics analysis. There is a well-established theoretical core that is common to most undergraduate textbooks and fairly universal across the range of economics degrees offered in the UK. This allows for considerable sharing of

teaching materials – indeed, many textbooks provide a range of teaching resources for lecturers as well as online learning support for students. Departments tend to offer a much broader and more varied range of optional courses, which build on this core by probing deeper into particular subfields (e.g. labour economics or international economics), as well as applied courses making the link to policy development and economic behaviour. As both the literature and the nature of the world economy evolve, new fields are developed (e.g. information economics) and others are de-emphasised (e.g. agricultural economics).

## TEACHING ECONOMICS

A quick look at the *Guardian* league-table data based on the National Student Survey (2005) on the teaching of economics suggests that in terms of teaching methods, it is one of the lower-rated disciplines by students, alongside a number of other disciplines which are heavy on mathematics. This picture is similar in other countries. For example, research in the USA reported in Becker and Watts (1998) indicated economics among the least popular disciplines in terms of student feedback on teaching, and noted that by the 1990s, while many other disciplines had introduced much more variety and interactivity into teaching, economics remained wedded to lectures, supported by limited audiovisual input, with textbooks and possibly workbooks as the staple. However, there are promising signs of development, and recent surveys of lecturers and students run by the Economics Network (2003) have shown dramatic increases, particularly in the use of learning technologies.

### *Lecturing and working with large groups*

Lecturing is used extensively in most economics programmes. In the survey of undergraduate economics students conducted by the Economics Network (2006), over 75 per cent indicated that they found lectures useful/very useful – the top-scoring teaching method in the discipline. The study found lectures to be most popular with older students, female students and final years rather than first years.

A number of aspects of the lecturing process have already been addressed (Chapter 5). As the core of many economics programmes is fairly stable, this is a fruitful area for sharing of resources. There is a wide range of sources for those looking for inspiration for lectures at all levels. Two particularly useful sources are the Economics Network and the Massachusetts Institute of Technology Open Courseware Project, details of which are in the references.

The Economics Network (2005) survey indicated three main areas where students felt lecturers need to improve their practice: structuring, reducing the complexity of visual materials, and making lectures more interesting.

### *Structuring*

Introductory economics is often based on a 'building block' approach, taking students through a logical sequence of steps, building up their theoretical understanding. The sequential nature of the subject can lead to an approach to lecturing which pays so much attention to each step that the 'big picture' can be missed. The lecturer knows very clearly where he or she is heading, but may not always explain this to students. A simple guiding principle here is to ensure that each lecture starts with that 'big picture', sets the particular steps to be achieved in a broader context, and then links back to the step already covered, and forward to the next. To the experienced economist, this may often seem blindingly obvious. However, what is obvious to the lecturer may not be obvious to the student.

### *Reducing the complexity of visuals*

PowerPoint or similar presentation software is in frequent use by economics lecturers. Many will include a range of different slide styles – text, graphical, algebraic and mathematical explanation. An article by Turner (2006) summarises the key features of effective visuals in economics as simplicity, accuracy and flexibility.

On simplicity, lecturers should pay attention particularly to graphical presentations. There may be temptation in taking a ready-made, completed graph and then trying to explain how it has been derived. A much more helpful approach is to take a complex graph and take it back to basics, starting, for example, with (labelled) axes and curve, and then building this up gradually (e.g. through using a series of slides, rather than a single slide). It can also be useful to show, for example, how the equation of the curve is turned into the actual plot, making the connection between the curve and the associated algebra. When demonstrating how changing the parameters can change the curve, again showing this in sequence, or showing the same basic graph augmented in different ways, can be helpful.

Once you have a store of basic graphical presentations, it is possible to demonstrate their flexibility to students, and also reduce your own production work – using your basic slide as a starter for a variety of explanations.

In practical terms, there are different ways in which this flexibility can be achieved. Lecture theatres may now be equipped with double projection facilities, which allow the lecturer to simultaneously use PowerPoint and a visualiser (or chalk/white board). This enables the lecturer to combine prepared outlines/notes with the practice of working through examples and ideas with students at 'writing' speed. An alternative option would be to use and annotate an interactive whiteboard. Appropriate use of technology can be a useful tool that allows, for example, gradual exposition of an idea or the development of a basic graphical form in an assortment of iterations.

On accuracy, with graphical presentations, remembering to label axes is important. If you model this good practice in your teaching, and also stress its importance to students, they should pick this up and implement it more systematically in their own work. Building accuracy of labelling and notation into assessment criteria can further reinforce this.

The other area where accuracy is important is with regard to mathematical notation. Here, economics students face many challenges, and plenty of room for confusion. Each textbook tends to adopt its own systems of notation. Each theoretical model, developed by a particular economist, will have its own notation. While experienced practitioners can understand, for example, that output is output, whether denoted by  $Y$  or  $Q$ , and that in consumer theory allocation across different goods could be denoted by  $g_1, g_2$  or  $c_1, c_2$  or  $x_1, x_2$ , students can become very confused. It is therefore worth paying attention to this element of detail, and ensuring that any visual materials in a lecture series have consistent notation ideally matched to the core textbook, if one is used.

### *Increasing interest*

Clarity of structure and simplicity can enhance interest by themselves, simply by enabling students to continue following the logic of an explanation. Where structure and simplicity are absent, students may get lost at an early stage, and never have the opportunity to get back into the explanation. While it is possible to see this happening in small lecture theatres, it is much harder in large ones, and different strategies are needed for the lecturer to ensure that students are keeping up, and to know when they need to reinforce a point. In economics, as in other disciplines, a vital way of maintaining student interest is to illustrate lecture content with examples relevant to the day-to-day lives of students or to current affairs and issues of national and international interest.

Strategies for maintaining interest to keep students active through the lecture are reviewed elsewhere (Chapter 5). Technological solutions are becoming more common. A growing phenomenon in lectures is student use of laptops, enabling them to annotate lecture materials electronically. This is fuelled by increased availability of wireless technology. In the USA there are vociferous debates over the pros and cons of allowing student laptop use in lectures, and some lecturers have attempted to ban the practice. Others see it as a growing trend that can be useful for students who use it well. Some lecturers provide students with materials that are easy to annotate electronically. This may include 'incomplete' lecture notes or PowerPoint slides, which students can work on and develop as part of the session, thus keeping them alert and focused. Obviously, the same effect is possible using hard copy teaching handouts.

### **Interrogating practice**

Think about your subject area. What examples can you draw on from current affairs, recent scandals, or day-to-day student life that could illustrate topics and grab student attention?

A more recent addition to economics lectures has been the introduction in some institutions of **Personal Response Systems** (PRS) to lecture theatres. These may be used

to check student understanding and views (e.g. using **MCQs**), to encourage active participation and response to the lecture material, and to introduce alternative stimuli to keep student attention. PRS allows for rapid interaction with large numbers of students in what can at times be a passive learning situation. Case study 1 gives an example of PRS use.

### Case study 1: Uses of a Personal Response System (PRS) in economics teaching

A PRS allows a lecturer or tutor the opportunity to ask questions to which the students respond by selecting an answer on a small handset. The answers are picked up by a receiver connected to a computer, with software collating the responses, and a summary of the responses given being presented as a bar chart on the computer screen (which of course can be projected on to a larger screen for the students to see).

Early versions of the PRS have been likened to the *Who Wants to Be a Millionaire* 'Ask the Audience' technology because multiple choice questions are asked. I have been using such a PRS successfully for a number of years in lectures for a second-year undergraduate Microeconomic Principles module. During the course of a 50-minute lecture, I might ask five questions at appropriate points. Questions can be asked to check student understanding of material just presented or to review material taught previously, and questions with a number of alternative correct answers can be posed to stimulate discussion. Hence, for example, in an introductory lecture on non-cooperative game theory, I may pose a question on the correct definition of a Nash equilibrium to check student understanding of the concept. Later I may show students a strategic form game, asking them to identify the number of Nash equilibria and/or the particular equilibria in the game.

The technology gives the lecturer an immediate indication of the level of understanding of students, but can also ensure that students remain focused as they receive a variety of stimuli during a class. The PRS can be set up on an 'anonymous mode' so that individual students' answers cannot be identified, or in a 'named mode' such that students' answers can be checked at the end of a session.

Recent updates to PRS include the opportunity to ask students questions requiring numerical or short text answers and to identify students by encouraging them to type in their name or library card number when they switch on so that their individual answers can then be recorded. This offers the prospect that the PRS may be used by students to load answers to homework exercises or tests, the

software then marking the answers submitted. The software for the system may now be used in conjunction with PowerPoint, allowing users the opportunity to ask a PRS question as part of a PowerPoint presentation, the summary of responses then also appearing within the presentation.

(Dr Caroline Elliott, Department of Economics,  
Lancaster University Management School)

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## SMALL GROUP TEACHING

**Small group teaching** forms an essential component in all economics programmes. The most commonly used forms are:

- classes to review pre-set problems;
- classes during which students work on problems, often in subgroups, with plenary presentation of their collective work;
- student presentations (group and individual) on both theoretical issues and their applications.

Some lecturers have started to experiment with a wider array of approaches, including the use of problem and case-based teaching (see below), games and simulations. The main purpose behind employing these different strategies is to increase active student involvement in the learning process. Since it is quite common in economics teaching for such classes to be facilitated by graduate teaching assistants, this means that module leaders need to ensure that all members of the course team subscribe to this approach.

A particular challenge for lecturers who use pre-set problems is motivating students to do the work in advance. A regular complaint from lecturers is that students come to classes unprepared, or take short cuts such as copying the answers from others, relying on answer sets from previous years, or quickly turning to answer sets provided by lecturers online. There are many reasons behind students failing to do preparatory work and it is important to distinguish between them and be prepared to address them in different ways.

### Interrogating practice

Consider the group of students you are currently teaching. List the different reasons why they may not always come to class fully prepared.

A variety of approaches may be used to increase student motivation to prepare them effectively for class and reduce the opportunity for them to take short cuts with homework. For example:

- using introductory classes to establish expectations by developing a shared ‘contract’ between students and lecturers;
- encouraging collaboration and clarifying when and under what circumstances collaborative learning is acceptable – for example, in assessed coursework will they be penalised for working together and handing in very similar workings?
- clarifying when and how problem set answers will be released (e.g. via the VLE) and advising students on how best to make use of them;
- accessing the vast array of problem banks available electronically, to ensure that each year group is faced with different problems;
- designing problem sets in ways that challenge different students with different levels of ability (e.g. consider including problems which are straightforward variations on already worked examples, through to more complex and new problems, which may include past examination questions);
- rather than using classes simply to present answers to problems, actively involving students in the process, e.g. through questioning, asking them to explain the intuition behind an approach, or having students compare their work and then present their work to the class;
- giving students the challenge of designing and then solving their own problems, possibly based on worked examples.

### Interrogating practice

In classes where students are expected to prepare work in advance, it is important to reward those students who come well prepared. What tactics will you use to reward those students who have undertaken the required work?

A common complaint from economics students is that their classes are not related sufficiently to real life and the application of theory to the day-to-day workings of economists in business. The increasing integration of economics into business and management programmes has led to some growth in case-based teaching and **problem-based learning**. An example of the application of problem-based learning to economics is given in Case study 2.

#### *Problem-based learning in economics*

Problem-based learning (PBL) is a teaching approach that puts students at the centre of the learning process. Working in groups, students take ownership and control of learning tasks set by the tutor of which they have no previous knowledge. The solution to the tasks involves a process of discovery and learning-by-doing through which deeper levels



of knowledge and understanding are acquired. PBL has been well developed in medical education and is fully discussed in Chapter 26. Students present their findings that have developed through group activity as an interdependent process, co-coordinated by the tutor. Research (reported by Forsyth, 2002) shows that students who experience PBL retain their knowledge over a longer period of time, learn at a deeper level and develop a range of transferable skills such as presentation, communication and teamwork skills.

### Case study 2: Introduction of problem-based learning into modules at London Metropolitan University

In 2005 we introduced PBL into our final-year modules. This decision was motivated by desire to experiment with alternative teaching methods, by the belief that students engage more with their learning when given greater responsibility and by the view that students should become independent learners by the end of their studies. Given this was a new initiative we decided to adopt a 'partial' approach to PBL: a mixture of directed and independent learning. In the first half semester learning is structured around a traditional lecture/seminar approach. In week 6, students are divided into small groups and are given a task designed to engage them with topics that would otherwise be covered in the rest of the semester. The task is assessed and accounts for 50 per cent of the course marks while a final examination accounts for the remaining 50 per cent. In the second half of the module lectures are replaced by presentations that report the groups' progress and form a base for class discussion that allows the tutor to direct students' attention to key issues and concepts. The tutor plays an important role in coordinating and supporting the learning process.

#### *Economic growth module task*

You have been hired as an economic consultant and policy adviser by the government of a small developing country. The country is ruled by a non-democratically elected government and open to trade with the rest of the world. The following statistics provide a snapshot of the economic situation in the country:

<b>Statistics</b>	<b>Value</b>
GDP per capita	\$1.444
National saving rate	0.035%
Average investment rate	10.05%
Average years of education	4.01
% of college educated	2.12

Average years of education for females	2.97
Income share of top 20%	0.44
Income share of bottom 20%	0.07
Openness	23%
Gini coefficient	0.34
Computers for 1,000 people	2.10
FDI/GDP	2.12

The government is concerned about the state of the economy and, in particular, the standard of living, and is interested in introducing policies aimed at fostering long-run economic growth. You have been asked to produce a report that, on the basis of the country's current economic situation, suggests growth-enhancing policies. Your analysis and recommendations should be supported by references to economic theory, the use of available international evidence through descriptive statistics and graphs, and the insights provided by regression analysis. Statistical information should be used to provide indications of the likely impact of a policy change on the economy's future growth.

(Dr Guglielmo Volpe, London Metropolitan Business School)

### *Educational games and simulations*

Some economics teachers have introduced educational games and simulations to drive student learning and to engage students in real-life economic issues. The *International Review of Economics Education* is a useful source of examples. Articles include a simulation used in an introductory monetary theory course, on the 'search-theoretic' model of money (Hazlett, 2003) and a role play/classroom experiment to demonstrate price controls and equilibration processes (Kruse *et al.*, 2005). The use of games and simulations can be highly effective in teaching complex ideas. However, they need effective integration into the curriculum, as well as a good reality check – unconvincing and trivial games can undermine the learning process. Time can be a challenge to the use of games and simulations, as many do not sit well in a standard one-hour teaching slot. Careful preparation and familiarity on how to use a game/simulation effectively is essential. For those new to using this approach, it is advisable to seek out others who are users, and observe the process before trying it. The process of debriefing is vital to ensure that students draw out lessons from the process, and see how it can apply more generally.

### ***Using IT in economics teaching***

Increasingly, Virtual Learning Environments (VLEs) and websites are used to support lectures, classes and independent study. Academic usage is growing apace: in the 2003 National Survey of Economics Lecturers, 58 per cent of respondents indicated that they were providing such online support. By the 2005 Survey on Teaching Research and

Technology, this figure had grown to 87 per cent and only 4 per cent were opposed to its use as a means of delivering learning resources. The 2005 Survey found that 90 per cent of economics lecturers already posted lecture materials online. Use is greatest in the first two years of degree programmes, where students will frequently be in large groups. Online resources will often include a range of different types of course materials (e.g. coursebooks, slides, handouts, problem sets, solutions to problems, simulations, worked examples, videos and podcasts of lectures).

## ASSESSMENT

Chapter 10 outlines the fundamental principles of assessment. A National Student Survey (SurrIDGE, 2006) suggests that students perceive this aspect of the learning experience as most problematic. Interestingly, students on the whole are confident that the assessment regimes they are faced with are fair, and that the criteria are clear, but approaching 50 per cent of them express concern about promptness (or lack of it) of feedback, similar numbers indicate that feedback has failed to help them clarify their understanding and over 40 per cent feel feedback is lacking in detail. Students studying economics are among those most critical of their assessment experience (along with engineering, medical and veterinary students). Together with later student surveys a powerful message emerges from across the sector on the need for more effective **formative assessment** of economics students.

Economics departments use a variety of assessment approaches, including examinations (which may incorporate essays, short-answer questions, case and problem-based questions, multiple choice questions), group and individual projects and online testing. The internet (e.g. the MIT Open Courseware Project) provides a wide array of examples of economics assessment tasks, which lecturers may find particularly helpful in identifying useful formative assessments – though clearly the key issue to ensure here is that any assessment tasks identified are well matched to the learning outcomes of the particular course. Volume of students on undergraduate programmes is also encouraging departments to explore the benefits and pitfalls of computer-assisted assessment (e.g. Chalmers and McCausland, 2002).

One area where there have been a number of recent developments is in the assessment of **transferable skills**. Chapter 8 has already introduced ideas on the integration of skills into curricula. An interview study of employers and alumni carried out by the Economics Network (2004) gives some insight into employer requirements. Many employers are keen to take on graduates with the appropriate technical skills, and expect them to be able to use these skills and to be able to make the results of the work intelligible to others. As one employer quoted notes: ‘We are looking for economics graduates’ ability to apply economic theory to policy in practical situations. They have to know enough of the theory to be able to extract it.’ The 2007 Economics Subject Benchmark Statement (QAA, 2007) puts clear emphasis on the importance of skills development, noting that this should include both the broad skills such as literacy, communication and IT skills and a range of more specific transferable skills which directly build on economics, such as

the ability to take account of opportunity costs, understand how incentives operate, and take strategic decisions. Case study 3 outlines one such development, focused on improving formative feedback on student writing skills, built into a core second-year microeconomics course.

### Case study 3: Introducing writing skills development into a microeconomics course at the LSE

Following feedback from employers concerning the poor writing skills of some economics graduates, lecturers at the LSE decided to develop a strong written component into the formative assessment of a compulsory undergraduate micro-principles course. Five assignments were designed focusing on different styles of writing. Some of these were aimed at improving skills students need during their studies – such as essay writing and exam writing. Others involved writing short pieces that students might be expected to produce in their future employment, essentially explaining economics ideas to lay readers in an intelligible form. The development of understanding of academic integrity was also built into the exercises, and student work was submitted to the **JISC plagiarism** detection service. Any problematic work identified through the service was then discussed with students.

#### *Some examples of writing tasks*

Inferior goods: If an economist says that a good is inferior, does this mean that the good is of low quality? In 100 words, answer the question, explain your answer and support your answer with one example.

In the year 2000 there were auctions of spectrum for third-generation mobile telephones in several European countries. These auctions generated different amounts of revenue in different countries. How can this be explained? (1,000 word piece)

The course on which the development was tested was a large one (500+ students), which employed 20+ graduate teaching assistants. An important element of the implementation was to train these new teachers in how to introduce writing in economics to students, and how to give effective feedback on written work. The teaching assistants were taught to use a standard pro forma for feedback, which aided consistency of both volume and style of feedback.

(Dr Margaret Bray, Dr Jonathan Leape and Neil McLean  
Department of Economics and Teaching and Learning Centre,  
London School of Economics and Political Science)

### Interrogating practice

Consider a formative assessment task already included in a course you teach. How could this be adapted to encourage and enable students to both practise and demonstrate their ability to communicate economics ideas to non-economists?

## EMERGING ISSUES

### *Mathematical abilities of economics students*

As noted earlier, the mathematical and statistical requirements of economics programmes have increased with the development of the discipline. Curriculum reforms in the UK have meant that students embarking on degree programmes with significant mathematical demands are hampered by a lack of technical facility, limited technical powers and an inadequate understanding of the mathematical precision needed (LMS, IMA and RSS, 1995). Curriculum reforms in 2000 appear to have made things worse rather than better, as evidenced in the report *Making Mathematics Count* (Smith, 2004) which concluded that the current curriculum and qualifications framework is failing to meet the requirements of learners, higher education and employers.

UK economics programmes have had to respond to current concerns, and have done so in an assortment of ways. Some have taken the route of keeping mathematical requirements to a minimum. This is particularly true of the more vocationally oriented business programmes, which do not expect or require high levels of mathematical ability. On the other hand, single Honours programmes have addressed this concern through a number of means:

- Making A Level mathematics a compulsory entry requirement, and increasing the incoming student awareness of the mathematical nature of the subject.
- Increasing the range and approach to the teaching of mathematics for economists, making this a larger component of the core programme, particularly in the first year.
- Introducing early diagnostic testing. Here, there is a wide variety of electronic tests that lecturers may find helpful – see, for example, Mathcentre in the references on p. 422, an initiative involving a number of UK universities, which includes some diagnostic tests appropriate to mathematics for economists.
- Establishing formal systems of support for students who are struggling. Examples here include provision of pre-sessional programmes to help incoming students get up to speed, as well as ongoing support, often through online learning. Again, there are many examples of self-learning electronic resources on the web that can be helpful in this context.
- Encouraging greater use of informal and **peer support** systems.

There is an obvious tension here between developing curricula that appeal to students and that they can succeed at (which may infer some 'dumbing down' of advanced economic analysis), and investing time and effort in ensuring that students have the necessary mathematical and statistical ability to cope. One practical consideration that economics lecturers should be aware of is that for the most part, first-year economics courses will run parallel to the accompanying mathematics and statistics courses. Consequently, lecturers need to ensure that the course structure is closely aligned with these other courses, and that they do not make inappropriate assumptions about students' numerical capabilities.

### *Managing diversity – dyslexia and dyscalculia*

As noted earlier, the student population is increasing in diversity. New lecturers need to be well versed in both student and institutional expectations as to how they should respond to this diversity. One important area of diversity that has come to the fore in recent years is disability. The **Disability Discrimination Act** requires that students with disabilities are not treated less favourably than others; that institutions make reasonable adjustments where disabled students may otherwise be placed at a substantial disadvantage; and that institutions promote disability equality through a systematic whole organisational approach. Numerical data suggest that within the higher education system, the most commonly registered disability is **dyslexia**. Trott (2003) outlines three types of students with dyslexia/dyscalculia who may be attracted to studying economics:

- 1 Students who have strong mathematical capabilities, but face difficulties with language-based work, reading and short-term memory. These students may be attracted to the more mathematical elements of economics, but struggle with the more discursive and business-related elements.
- 2 Students who do not have problems with basic mathematics, but do find concrete to abstract generalisation problematic and face difficulties with 'remembering and retrieving symbolic material'.
- 3 Students who are dyscalculic, having problems with understanding numerical concepts. These students may have high levels of anxiety related to mathematics, and possibly be unaware, prior to starting a programme of study, of the level of mathematics/statistics that is required.

Given the array of economics courses and the association between economics and business on the one hand, and mathematics on the other, lecturers may well work with all three types. Universities will have specialist provision in place to support students with disabilities, and lecturers should be knowledgeable about where to direct students for additional support, and encourage openness and disclosure. In addition, the positive duty to promote equality makes it incumbent on lecturers to think and plan in advance

ways of making their teaching inclusive – such that if a student chooses not to disclose a disability, he or she is still not disadvantaged. Lecturers should be aware of the importance of making any web-based materials accessible to students with disabilities. There is substantial advice on accessibility available on the web (e.g. the JISC TechDis site) and university website services should be able to advise colleagues.

### ***Managing and supporting graduate teaching assistants***

One effect of increasing pressure on resources in universities is greater use of graduate teaching assistants (GTAs) – often Ph.D. students or junior researchers starting out on their academic careers and keen to gain experience in teaching. To be effective, GTAs need an induction and support in their role and, to ensure quality of the student learning experience, careful management of them is vital. For lecturers involved in the organisation of courses that employ considerable numbers of GTAs, there is an array of tasks and responsibilities they may need to be aware of. Lecturers may need to ensure that:

- careful consideration is given to the appointment of GTAs with the necessary subject expertise and the ability to communicate effectively with students in the learning setting;
- GTAs are given appropriate initial training;
- GTAs are briefed on the objectives and expected learning outcomes of the module and its content;
- GTAs can recognise and address the likely problems students face in topics;
- GTAs know how to grade and provide feedback on student work;
- they can monitor and give feedback to GTAs on progress – which may involve observing them in class, seeking out or reviewing student feedback, and monitoring student academic progress.

#### **Interrogating practice**

Think about the course on which you are teaching. Which topics do students find particularly challenging? What aspects of those topics cause the greatest difficulties? What strategies have you found that help students to understand and overcome these difficulties?

How would you advise a co-teacher or GTA implementing these strategies?

The LSE has a successful and established programme for the induction and development of its GTAs and this is described in Case study 4.

### Case study 4: Training for graduate teaching assistants at the LSE

The Department of Economics at the LSE employs around 80 GTAs each year. They provide much of the class teaching, supporting groups of up to 15 students. They grade and give feedback on coursework (which does not count towards the final degree). They also have weekly 'office hours' in which students can come to them with individual queries on their academic work.

Training and support for GTAs is a joint responsibility between the lecturer responsible for the course on which they are teaching, the department as a whole, and the Teaching and Learning Centre (TLC). Initial selection takes into account subject knowledge and communication skills. Many of the LSE's GTAs speak English as a second language. As part of initial selection and training, English language proficiency is carefully reviewed. Where additional language support is seen as necessary, this is funded by the department and required of the GTA. All GTAs must undertake some initial training, run jointly by staff from the department and TLC. GTAs are paid to attend this training, which includes a videoed teaching practice session, as well as a marking exercise using past student work.

At the course level there is some variation in approach, but the majority of course lecturers will hold briefing meetings with their GTAs, and some will hold regular meetings with their GTA teams throughout the year. Use of web-based learning resources and the institutional VLE means that most courses have comprehensive learning resources available to teachers and students. One course has a particularly sophisticated approach to monitoring student progress across its substantial numbers of classes and GTAs, using weekly online quizzes to maintain a view on variations in performance, which enable follow-up both on particular topics of concern, and where necessary with GTAs whose students appear to be having more difficulties than most.

In the first term of teaching, a lecturer from the department will observe new GTAs in class. Also in the first term, there is an online survey of student views on the quality of class teaching. Data on individual teachers are considered, and any GTAs seen to be facing difficulties with their students are contacted and provided with additional training and direct feedback on their teaching. The online survey is an annual process – hence enabling follow-up of any GTAs who face difficulties in subsequent years. Survey results are also used to identify particularly capable GTAs who may be offered additional office hours in the run-up to examinations. The best teachers may be nominated for teaching prizes, and may also be invited



to contribute to the training of new class teachers in subsequent years. Some may subsequently apply for teaching fellowships of one or two years' duration. These enable GTAs to extend the range of teaching responsibilities they have, and may be seen as an important part of their career development as academics. In addition, GTAs have the option of enrolling in a Postgraduate Certificate in Higher Education, and can complete modules leading to HEA Associate and Fellow status.

(Dr Liz Barnett, Teaching and Learning Centre,  
London School of Economics and Political Science)

## OVERVIEW

This chapter has tried to draw attention to distinctive issues in the teaching, learning and assessment of economics. It has drawn attention to recent developments in the use of technology in teaching, approaches to handling the challenge of students' mathematical abilities, some issues relating to students with dyslexia and finally ways of effectively supporting course teams which include graduate teaching assistants. The chapter links to recent research into aspects of the student and lecturer experience in economics in the UK, conducted by the Economics Network.

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## FURTHER READING

The Economics Network has two excellent resources:

*Handbook for Economics Lecturers*, <<http://www.economicsnetwork.ac.uk/handbook/>> (accessed 14 January 2008). A resource covering teaching methods, assessment, course design, etc. and useful to lecturers and teaching assistants.

*International Review of Economics Education*, <<http://www.economicsnetwork.ac.uk/iree/>> (accessed 14 January 2008). A peer-reviewed journal focused on research and practice in economics education.

Becker, W E and Watts, M (1998) See above. Based on economics teaching in the USA and written by economists for economists, with an array of practical ideas.