

USING TECHNOLOGY IN TEACHING AND LEARNING

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Using Technology in Teaching & Learning

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Preface

The book was originally funded by HEFCE, SHEFCE, HEFCW and DENI under the Teaching and Learning Technology Programme (TLTP) and published within the TLTP programme as *Technology in Teaching and Learning: a guide for academics*.

The Teaching and Learning Technology programme (Phase 1 and 2) was a large national programme from 1992–1996, with an estimated outlay of £44 million. This period focused on teaching innovation using current learning technologies, with project consortia from UK universities producing computer-aided learning packages. A promotional CD-ROM of some of the packages produced can be obtained from: TLTP, Northavon House, Coldharbour Lane, Bristol, BS16 1QD, England.

In addition to the production of material, a group of eight universities were institutionally funded to work at an infrastructural level to move the culture of their university towards an increased use of learning technologies. The Interactive Learning Centre at the University of Southampton was set up under this institutional phase of the programme.

The guide was originally conceived and designed by Dr Haydn Mathias and myself as a reflection of the learning technology staff workshops held at the Interactive Learning Centre (ILC) of the University of Southampton. The guide comprised two books: one on the application of technology to teaching and learning and the other as a technical resource on understanding the technology. The books were accompanied by a video giving an overview of the technologies and their use.

I would like to thank Leslie Mapp from the Open Learning Foundation for his constructive advice during the early stages of the design. I would also like to thank our reviewers, Dr David McConnell from the University of Sheffield and Dr Chris Colbourn from the University of Southampton, who dissected the draft and gave us good advice leading to the final product.

The video of case studies was produced by Peter Phillips from the University of Southampton. We are also very grateful to those who gave us their time and agreed to appear in the video: Dr Chris Colbourn (University of Southampton), Dr Christine Steeples (University of Lancaster), Malcolm Ryan (University of Greenwich), Dr David Fincham (University of Keele) and Dr Philippa Reed (University of Southampton).

Thanks also go out to our technical team on the original guide: for graphic design and page layout, Neil Dawes, Catherine Poupart and Claire Ausden from Teaching Support and Media Services at the University of Southampton.

We also extend our thanks to our editor, Margaret Shaw, who painstakingly went through our manuscript with a fine-tooth comb, weeding out inconsistencies and clumsy expressions.

This commercial publication of the guide is sold as two separate books: *Using Technology in Teaching and Learning* and *Technology in Teaching and Learning: An Introductory Guide for academics*. We have had very positive feedback from users of the guide. The 'Using' book looks at the application of learning and technology while the 'Introductory' book is a reference to understanding the technology. The 15 minute video (available from Southampton University) is ideal as a training tool as it gives a quick overview of learning technologies. Feedback from those using the guide to date have said they use the 'Using' book and video as part of training material for staff, while the 'Introductory' book has been used as a back-up resource for trainers and by other staff on student teaching programmes.

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ICONS



pencil: activity section



open book: references to other material



cross: cross references to material further in the book or its partner book



exclamation mark: please note

Foreword

The inclusion of learning technologies within education at all levels is becoming a reality; it is something institutions, departments and individual members of staff cannot ignore. Learning technologies have opened up a world of multimedia resources that can be quickly searched and flexibly accessed across computer networks, not only locally but also worldwide. In addition, they can be combined within the rapidly growing world of communications via email, conferencing systems and the World Wide Web.

The infrastructure for these 'new' worlds is already being established in many areas of society, and we shall see an explosion of their use within the next five years. As providers and users of these technologies, educators and students need an understanding of how they can enhance the university programme. This will inevitably lead to new methods of teaching and learning, and to an exciting debate on the educational implications of technology.

This book looks at the issues involved in integrating these learning technologies within teaching and learning, while setting the issues involved in a wider educational context.

Cross references are made within this book to a further book, *Technology in Teaching & Learning*, which provides the basic knowledge for getting started with the technology.

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I Educational perspectives

1.1 *Why change how we teach in higher education?*

This resource learning pack is all about innovation and change in teaching and learning in higher education. Its focus is on the roles of information technology and computer technology in improving the quality of teaching and learning, and on looking to future possibilities and challenges.

But why bother? Why change?

For most of us, there are likely to be two primary motivations – or types of pressure – to change:

- external – changes in who we teach, what we teach, what resources are available to us for teaching, and how our teaching is judged by others; developments in educational research, which highlight alternative approaches to teaching and learning
- internal – personal interest in improving and developing our teaching, based on current experience.

If your motivation for picking up this package is primarily personal – perhaps you are facing a particular teaching problem, and are looking for ways to solve it – it may be worth going directly to the sections on teaching and learning. You can always come back to this section later!

If you have a more general interest in exploring why and how you might change the way you are teaching now, it will be worth spending some more time on considering the effects that external pressures are having on you. Different pressures will suggest different options for change. The following pages look at some of these pressures, which you will find grouped into four key categories:

- pressure from changes in the students we teach
- pressure from new public expectations of higher education
- pressure from the impact of technology on the production and dissemination of knowledge itself
- developments in educational research which suggest more effective and efficient approaches to teaching and learning.

1.1.1 *Changes in the students we teach*

The first and most obvious change is in the nature of the student body itself.

- Student intake has more than doubled since 1982 – and this has not been matched by a commensurate increase in numbers of lecturers, nor in resources for support of teaching.
- Entry qualifications have changed, with more students entering on the basis of ‘non-traditional’ qualifications.
- Mature student intake has risen considerably. For example in the United States between 1980–1990, student enrolment for those under 25 years increased by 3%, compared to a 34% increase in enrolments for students over 25 years.¹
- There are more overseas students, both from Europe and from further afield.
- There are more part-time students, often faced with both family and employment pressures on top of their degree work.

As a university lecturer today, you are likely to be facing much larger and more diverse classes than you would have done ten – or even five – years ago. Yet much of university education is still geared to the lecture/seminar/tutorial (and sometimes laboratory/practical) system. It is heavily dependent on the face-to-face contact between lecturer and student which you yourself probably experienced. There is ample evidence to indicate that on the whole, teachers are prone to replicate the teaching they have experienced – unless they actively pursue development in this field. The difficulty with trying to continue today what has been done in the past is that it will inevitably put an ever-growing strain on you as you try to provide adequate support to students. Furthermore, given the current student body, this system may simply not work as well as it used to.

Figure 1.1 highlights some of the pressures created by increased numbers and diversity. You will find several of these issues picked up again later in the teaching and learning sections.



J.M. Consulting, HEFCE Publication (1997)¹

Figure 1.1

Problems for lecturers created by increasing student numbers and student diversity	Sections from Teaching and Learning which address these problems
Classes outgrow lecture theatres	2.2/2.3
Student access to library resources becomes more difficult	3.1/3.2
Seminar groups get bigger so there is less opportunity for active discussion between students	4
Seminar-based courses have to be turned into lecture-based courses, as groups get too big for effective seminars	2.2
Academic staff have too many personal tutees to give them the one-to-one attention they need	4.1/4.4/4.5
Having to spend more time on assessing large groups reduces the quality/efficiency of feedback to students	2.4
Having students joining courses with different 'entry levels' creates a need for more specialist support for different types of student and for greater flexibility in courses	3.2/3.4/3.5
Some students have to fit their studies into existing work and family commitments	3.4/4.6
As part of their studies, mature students expect or need to build on their past work and life experience	3.4

There are further important, but less obvious, changes in students. First, an increasing proportion are contributing much more of their own money towards their education – leading to an increasing 'consumer orientation' within higher education. This adds two new pressures:

- Increasing questioning by students of what they are 'getting for their money' – raising the importance of taking on board student feedback about courses and addressing student concerns.
- Greater expectation from students that their higher education will somehow improve their employment prospects, and will start to provide them with some of the skills they need for work – making it more important for universities to consider the extent to which degree courses should and can be seen as preparation for employment.

Secondly, many students are entering higher education with a different level of awareness about IT and computers than we, their predecessors, did. They (and their future employers) increasingly expect not only access to new technology, but also experience in developing their skills in its use.

To put this point into context, look at Activity 1A on page 6. In the first column are a range of possible IT skills we might expect students to develop. Looking back, five years ago we probably wouldn't have *expected* any of them. But what of today? Look down the list and tick those you would expect of your current students. Then look at the next column to assess for yourself whether the courses in your department do anything to help students develop these skills. Finally, are there adequate facilities to enable students to practise their IT skills?

Personal experience with computers and research both demonstrate that IT competence can be achieved only through regular, frequent use of IT. If students need these skills in the future, and have already started to develop them prior to entering university, it is the duty of university teachers to strengthen and develop these skills. This does not simply mean telling students that essays must be word processed: it involves providing tuition on IT skills, getting students to apply those skills in a variety of ways, and finding ways of assessing them. This pressurises us to change what and how we teach, for core IT skills need to be embedded in the curriculum.

This book is not specifically designed to help students to develop IT skills. However, many of the ideas in the other sections will contribute to this.



Activity 1A Your expectations of student IT skills

Student IT skills/expectations	What I expect of students	Do I prepare students to develop these skills?	Are there ample facilities to enable students to skills they've developed?
Students with some IT skills (eg word processing) on entry			
Students with a range of IT skills by graduation	(List the skills you expect to be developed for each of the degree programmes you are involved in)	(Tick those you actively help students to develop)	
Students able to use some form of computer-based bibliographic search facility by final year			
Students using internal email systems			
Students starting to use the WWW/Internet			

Feedback

Clearly, if you have a mismatch between items you ticked in the second column and those you ticked in the final two columns, there is a mismatch between the expectations you have of your students and the support they get from you. This suggests a need for change!