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Facing up to Radical Changes *in* Universities and Colleges

STEVE ARMSTRONG,
GAIL THOMPSON AND
SALLY BROWN

SEDA

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STAFF AND EDUCATIONAL DEVELOPMENT ASSOCIATION

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Contents

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Chapter 1

Changing Universities: From Evolution to Revolution

Gail Thompson

The last 15 years have seen a worldwide revolution in higher education. The university system has broadened to embrace a much bigger and more diverse student population, and the scope of educational delivery has been widened by the use of new technologies. A large proportion of the student population is less interested in enjoying the university experience for its own sake than in finding a job at the end of it. Many now opt for vocational courses, and following this trend, some universities recently have even started to offer degree courses in subjects which traditionally have been learned through apprenticeships.

Perhaps more significantly, there has also been a realization that completion of a course in higher education should no longer mark the end of the educational process. With today's world changing ever more rapidly, we all must constantly adapt to different situations and acquire new knowledge. Learning has become a lifelong process for everyone, and consequently, higher education is becoming more process oriented. It is also reaching out beyond the boundaries of the traditional student population into industry, commerce and the service sector; to people who perhaps would never have contemplated taking a formal course in higher education in the past; and across national boundaries.

The revolution has largely been the doing of government agencies. Around the world, legislation has been introduced to promote higher education while keeping costs acceptable, mainly for industrial and commercial reasons. The resulting changes have been far-reaching and quite startling in the speed at which they have taken effect. In the UK we have seen:

- the replacement of the dual system of universities and polytechnics by a single university system;
- a radical overhaul of the funding system, which is now based on performance indicators;

- a significant increase in student numbers (without proportional increase in resources);
- an increase in off-campus and work-based learning;
- changes in student funding, with a shift from grants to repayable loans, and more emphasis on family support;
- modularization or unitization of programmes of study;
- movement from an elite system to a mass system.

Throughout the world, similar changes are taking place; for example in Australia, where parallel processes have been moving even faster than in the UK, in the United States, and in South Africa and New Zealand, where similar trends have been observed.

These are changes that are familiar to all of us who work in higher education. The problems and issues raised by the changes, and how we can cope with them, have been the subject of much discussion, and this may sometimes have caused us to forget why these changes have occurred. Why, in particular, have governments taken so much (costly) interest in changing a system which has evolved over centuries and which has, until recently, served its students well? The cynics amongst us would doubt that it is simply from an altruistic ambition to build the perfect educational system, suspecting more political or financial motives. In fact, one of the main forces for change has been the drive for international competitiveness. Research shows that nations that have been most successful in terms of competitiveness over recent years are those that have developed a new type of educational system. Their new model is much more broadly based than the old one; it still fosters specialization in academic or vocational subjects, but now alongside this is placed competence in a range of core skills which generate adaptability, creativity, and the flexibility to respond to changing demands. The culture of lifelong learning forms the foundation for this new model. It is clear why this has happened.

- In today's environment, new knowledge is being acquired at a greater rate than ever before, so that knowledge gained only a short while ago is useless or obsolete.
- Advances in technology are accelerating at a rate unimagined ten years ago, and the workforce is having to change constantly to keep up to date.
- Jobs are less secure than they ever were. Gone are the days when a worker could stay in the same job throughout his or her working life. Now, most people will not even stay in the same type of job for very long.

It is easy to see that the traditional model of education, which in the main focused on the attainment of a discrete body of specialist knowledge, is no longer as relevant as it was. Employers now want their workforce to be flexible and innovative, expecting them to be capable of learning new things

as the need arises. Knowledge for its own sake is no longer so important. Technology now provides us with a vast repository of up-to-date knowledge at the fingertips of everyone with the skills to access and use it.

Many universities, however, have been slow to acknowledge this trend. In 1992, Britain was ranked thirteenth on the world competitiveness scoreboard (Amin Rajan, 1993), and many researchers blame this decline on the educational system:

> 'a major barrier to upgrading and even to sustaining competitive advantage in industry (has been the way) the British educational system has badly lagged behind that of virtually all the nations we studied. Access to top quality education has been limited to a few, and a smaller percentage of students go on to higher education than in most other advanced nations.' (Porter, 1990)

In 1995, a report from the Paul Hamlyn Foundation National Commission on Education stated:

> 'According to the Organisation for Economic Co-operation and Development (OECD), the United Kingdom in 1992 had the lowest rate of participation of 17 year olds in full-time education in the European Community. The average participation rate for 22 countries covered world-wide was 75%; this country's proportion was 57%.'

It is little wonder, then, that the British government has acted with such conviction to press ahead with substantial changes to the system, and of course the picture will be the same in all countries trying to stay competitive.

However, I would not want to pretend that our educational revolution has only political or economic advantages. We should not ignore the fact that the very nature of our society has changed significantly over the last generation, and that this in itself has brought about a need for a review of the role of the educational system. Rogers and Freiberg explain it thus:

> 'Forty years ago the education of students was sustained by five pillars of support: families, culture, religion, community, and the school. The high rate of divorce, combined with the economic and personal needs for both parents to work outside the home, has shattered the ability of families to focus on and support the education of their children. Divorce, job changes, and housing mobility resulting from poverty have also destabilised the community. According to researchers, if current trends remain the same, by the year 2020 nearly 50% of all students will be educationally disadvantaged.' (Rogers and Freiberg, 1994)

This picture is starting to look rather gloomy for those of us in higher education. It seems that not only do we have the responsibility for the wealth of the nation on our shoulders, but we now also have to make up for the shortfalls in our society! We should, however, be cheered by the fact that the changes that we are seeing have sound educational principles behind them, even if they do sometimes seem to be secondary. We now have a system that is open to a much wider range of people than ever in the past,

and at last there seems to be a widespread acceptance of the idea that the true role of educators is to show students *how to learn*. So much emphasis has traditionally been placed on teaching that learning has often been relegated to second place, and this fact has not gone unnoticed or without comment.

> 'It seems that, to most people, teaching involves keeping order in the classroom, pouring forth facts usually through lectures or textbooks, giving examinations and setting grades. This stereotype is badly in need of overhauling ...the primary task of the teacher is to permit the student to learn, to feed his or her own curiosity. Merely to absorb facts is of only slight value in the present, and usually of even less value in the future.
>
> 'Nearly every student finds that large portions of the curriculum are meaningless. Thus, education becomes a futile attempt to learn material that has no personal meaning. Such learning involves the mind only: It is learning that takes place 'from the neck up'. It does not involve feelings or personal meanings; it has no relevance for the whole person. In contrast, there is such a thing as significant, meaningful, experiential learning.' (Rogers and Freiberg, 1994)

With the spread of student-centred learning approaches, distance learning, group projects, and so on (admittedly introduced mainly because of the strain on conventional methods and resources) teachers are being forced into the role of facilitators of learning, and perhaps this is one of the major advantages of the changes we are seeing. This theme is addressed in several chapters of our book.

In addition, the higher education system is increasingly focusing on the importance of quality assessment, assurance and enhancement. The changes in higher education have resulted in educators being much more accountable to all their stakeholders, not least the students. Perhaps because students are now required to make much more of a personal financial commitment to their own education, they are outspoken in demanding good service. There has been a growth in formal quality systems which many would argue are cumbersome and hinder the educational process. Nevertheless, the systems have made education much more transparent, and as a result many positive changes have been made.

So, herein lie the roots of our revolution. It is a revolution because of the speed at which the changes are being made, and because it demands a culture change, to one of flexible, lifelong learning available to everyone.

Universities that fail to face up to the changes are unlikely to survive, and we are already seeing widespread strategic development of institutions to take them into the next century with the new culture and ethos. But change does not come easily. Higher education has a long history embedded in the traditional approach, the changes have no precedent, and they are happening at breakneck speed. Additionally, many of the staff within the system began their careers long before the start of the revolution, and are

understandably still immersed in the old methods and traditions. Trying to change their whole approach while dealing with the heavier workload resulting from the vast increase in student numbers has been no easy task for even the most committed, enlightened, and enthusiastic academic manager.

It is therefore little wonder that there is a significant strategic gap in higher education. On the one hand, we have a rapidly changing environment demanding quite a different higher education experience to the traditional model, and on the other are the deliverers of education, finding it difficult, for varied reasons, to reject the established paradigms that have always worked in the past. Of course, students and staff alike are caught in the middle of this gap formed by the mismatch between demand and established practice, and many are finding it difficult to cope. It is this issue that we aim to address in this book. We look at the issues from four perspectives.

In Section I, we examine how technology is being used to support teaching and learning. While there has been a great deal written on this subject in recent years, the main emphasis has been on the learner perspective. In Chapter 2, Philip Barker takes a fresh approach by concentrating on how technology can be used to support teaching. His chapter addresses the important issue of how computer technology can be used to enhance and augment lectures, increase their accessibility, and improve their quality from both the staff and student perspectives.

Wendy Hall and Su White consider that the technology revolution has been very slow to take hold in higher education, largely because the sector has been so resistant to change. In Chapter 3, they describe how their own organization has overcome this resistance via their TLTP-funded Scholar Project, which has, they argue, successfully changed the culture of the university and allowed bold objectives to be set for the use of computer-based learning in their programmes.

Chapter 4 draws on experience from outside the higher education sector. Gerald Prendergast of Gloucestershire Constabulary presents an extended case study of how computer-mediated communication has been used on a distance learning course to enable a tutor in one location to facilitate the supervisory skills of distributed students. He shares with us his successes and his problems from his pilot cohort, and offers reflections on the role of the tutor in this type of learning situation. It is particularly interesting to look at the way that he describes how electronic communication media are able to support teaching and learning processes that we used to think were exclusive to the classroom. His case study shows us that support, good humour and friendly interaction can all take place, even though the students are dispersed and not always working in real time.

In Chapter 5, Ray McAleese asks the reader to think seriously about how we can make sure that technology is used to serve educational purposes,

rather than education being adapted to suit the technology available. This cautionary note is a suitable way to close section one, for it is important that as we plan for change in our universities and colleges, we should be both pragmatic in the ways in which we use technology and visionary in the way that we embrace product change.

Section II comprises five chapters that consider the new strategies and policies that will have to be developed by academic managers in order to ensure that our universities and colleges can cope with the radical changes that we are facing. T Dary Erwin opens the section with a US perspective. This has the familiar story of budget cuts, increasing class sizes, and frozen vacant posts. He argues that the solution to improving this situation may be in our hands, explaining that a review of institutional assessment and evaluation processes is vital to provide the data with which we can support our arguments for additional resources.

In the next chapter Mike Laycock describes the 'QILT' process that has been adopted by the University of East London. He argues that this approach facilitates changes and improvement in his organization, in contrast to the traditional quality assurance approach adopted by most universities, which, he maintains, only serves to slow change and stifle improvement. The chapter describes how the whole institution is becoming involved in the improvement process, and the experience leads the author to argue strongly that university staff development should not be centralized but should be the responsibility of managers at a local level, who can ensure the development of all their staff.

Next, Alastair Pearce provides us with a really radical vision of the future. He suggests that modularization and unitization have not gone far enough towards providing a truly effective system of education. He suggests that that if we move to learning outcomes as the 'unit of delivery', students will be able to tailor their education to their needs and pick up elements that are most useful to them. He has also been brave enough to consider the problems that this might cause in university administration systems!

In Chapter 9, Sally Anderson and Fred Percival address the very topical subject of extending access. They describe two projects from Napier University in Edinburgh which are aimed at extending access to two groups of potential students: those in the FE sector, and those who do not have a traditionally accepted qualification, particularly among the unemployed. The paper describes how the two schemes were set up, and how some of the associated problems were overcome.

A chapter by Barry Jackson concludes the section on strategy and policy. He considers why academic managers have so far been largely ineffective in facilitating change in teaching practices within HE. His conclusion is that before organizations can change, the managers themselves must change to become academic leaders.

Section III includes a group of chapters about how academics can respond to the changing nature of students in our universities. In the first of these,

Steve Armstrong describes a practical solution to one of the problems of ever-increasing student numbers, with his surgery-based project supervision model. Within this chapter he also discusses his research into the effects of cognitive style on the success of student–supervisor relationship.

In Chapter 12, Pauline Kneale investigates the phenomenon of the 'strategic student'. Her preliminary research suggests that the expansion of the HE system has resulted in a growing number of students who are primarily non-academic in nature, and who are motivated by things other than academic achievement. Here she explores the causes and implications of this issue.

The next two chapters are concerned with the transition of university teachers from being knowledge providers to supporters of learning. Lorraine Stefani and David Nicol identify a deficiency in the learning culture of higher education arising from the fact that tutors and students do not share common conceptions of the learning environment. They suggest using a simple classroom evaluation technique to increase tutor–student dialogue in order to alleviate this problem. Further practical guidance is offered in the next chapter. Pete Sayers and Bob Matthew describe how they have adapted Blanchard's Model of Situational Leadership (originally designed as a model for supervision), to the learning situation. They explain how it can be used as a basis for reconsidering issues of power and control in the classroom, in order to create a flexible learning environment in which tutors adapt their style according to the needs of their students.

The final section of the book considers staff development approaches and methods that can help tutors face up to radical change in colleges and universities. First, Stephen Cox and Ruth Heames look at the effect that pressures in higher education are having on individuals' wellbeing. The authors offer practical advice on ways to reduce stress in students and staff, particularly by adopting different teaching techniques.

Chapter 16 provides a case study from the University of Central Lancashire's Department of Languages. This organization has embarked upon a structured programme of departmental change following the realization that the ad hoc changes taking place would not allow the department to meet its objectives. Paul Gentle describes how the programme, which is based on structured staff development, is moving the department towards being a learning organization.

The penultimate chapter of this section provides us with an overview of the issues of teaching and learning in universities from the staff development perspective, and suggests that we need to maintain a balance with academics who have a number of demands placed on them, as they are now required to be teachers, researchers, and managers. Phil Candy discusses how they might cope in this changing environment, and suggests some ways forward.

In the final chapter of the book, Sally Brown argues that facing up to radical change in universities and colleges is an issue that cannot be ducked.

We might as well therefore seize the opportunities provided, and work towards methods of curriculum delivery and assessment that are fit for purpose, reliable and sustainable.

This book gives an insight into how colleagues in higher education across the world are actively meeting the challenge of the changes that we currently face. We can not foresee future changes; the only thing we can be sure of is that we must continue to be responsive, self-reliant, dynamic and multiskilled. The challenge remains with us all.

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SECTION I
Using Technology to Support Teaching and Learning

Chapter 2

Assessing Attitudes to Electronic Lectures

Philip Barker

INTRODUCTION

Computer technology offers many new dimensions for the provision of support for teaching and learning. Until recently, most emphasis has been given to learners and the creation of more effective and more efficient individualized and group learning systems based on the use of computer-assisted learning (CAL), computer-based training (CBT) and computer-mediated communication (CMC) techniques. In the majority of cases, this objective has been realized through the development of supportive and/or collaborative learning mechanisms involving various types of interactive, technology-based environment (Barker, 1990; 1994; 1995). Nowadays, as organizational attitudes and infrastructures are changing, more attention is being given to the use of computers as support aids for teaching. This chapter therefore addresses the important issue of how computer-based methods can be used to develop, maintain and deliver electronic lectures as part of a more holistic approach to electronic course delivery.

Despite their many known pedagogic limitations, lectures undoubtedly offer a cost-effective way of delivering instructional material. It is therefore imperative that we think about the different ways in which computer technology could be used in order to:

(a) enhance and augment lectures;

(b) increase their accessibility (not only to local, campus-based students but also to distance learners); and

(c) improve their quality – from both staff and student perspectives.

With these objectives in mind, this chapter strongly advocates the use of electronic lectures as a viable mechanism for improving both the quality of lecture material and the ease with which it can be accessed by students. It is also proposed that this approach to lecturing can significantly improve the quality of students' exposure to lecture-based resources.

Essentially, an electronic lecture is one in which the use of a computer-based projection system is used to augment (or indeed replace) the use of OHP transparencies or a slide projector. Obviously, the use of lectures of this type allows a range of new types of instructional mechanism to be developed. Very often these can be based upon the use of multimedia resources that incorporate text, sound, pictures, animation and video material (Hofstetter, 1995). The various materials needed to create these lectures can be retrieved from a wide range of sources. Typical examples of these include: local resource packs (employing re-writable optical storage facilities or read-only media such as compact discs); and remote locations that involve the use of computer communication networks such as the Internet and the World Wide Web (WWW).

Because of the many different types of resource that can be used for their production, the design, creation and delivery of electronic lectures differs in many ways from the analogous activities involving non-interactive media such as OHPs and slides. For example, it is possible to integrate the use of special types of 'build sequences', transitions, sound effects, animations and simulations in order to illustrate particular points. Materials can also be pulled in dynamically from any source to which a lecturer can connect during his/her presentation. Naturally, using techniques such as these, lectures can become far more exciting and motivating than they have been in the past.

Bearing in mind the above, the objectives of this chapter are now to describe and discuss the issues involved in producing and delivering electronic lectures using currently available computer-based presentation packages. The chapter commences with a short description of our reasons for wishing to use this approach to teaching. Some different approaches that reflect current practice in this area will then be briefly described. Finally, the results of a student-oriented evaluation of electronic lectures will be presented and discussed.

MOTIVATION FOR ELECTRONIC LECTURES

Before discussing the different approaches to preparing and delivering electronic lectures, it is necessary to consider some of the important factors which underlie the growing commitment to this approach to teaching.

Undoubtedly, one of the most influential factors to consider is institutional policy and the hidden or direct messages that organizational fundholders pass across to lecturers and teaching staff. An example of such a message is reflected in an editorial which appeared in a recent edition of a journal devoted to learning technology.

> 'I was recently invited to give a lecture at the opening of a new high-technology lecture theatre at Leeds Metropolitan University. It is one of the best examples of its kind I have seen. Its impressive features include hi-fi surround sound, an enormous back-projected screen giving superb picture quality from either a VCR or directly from a computer for live demonstrations, online facilities, and the latest remote-control slide-projection equipment... Clearly, this set-up involved major expenditure. It was therefore presumably discussed at great length before the decision concerning such a long-term commitment was taken. But a commitment to what? To the use of technology in education, obviously, but also to the stand-up-and-deliver lecture. Typically, computer-assisted instruction involves a single student or small group of students sitting in front of a monitor, interacting with some software and self-pacing their learning. The traditional lecture represents the very opposite of this approach: large numbers of students taking notes, with interaction at best limited and at worst non-existent, and with the pace of proceedings depending almost entirely on the lecturer's judgement.' (Jacobs, 1994)

The message embedded in this editorial would appear to suggest a somewhat negative institutional attitude towards the use of individualized instruction and computer-based learning. On the other hand, as Jacobs himself suggests, it would seem to offer considerable support for the thesis that lectures (in one form or another) will continue to be used as a major vehicle for university teaching in the years ahead.

In addition to institutional policy, there are many other, more pragmatic reasons why staff in higher education might wish to use electronic lecturing techniques to support their teaching activities. Among the more important of these we must include the fact that, in general, electronic lectures are easy to produce, provided suitable authoring packages and appropriate automation tools are employed. Of course, we must also take into account the observation that, because they are in electronic form, lectures of this sort are easy to share with colleagues and with students; they can therefore be used to support distance learning and tele-teaching techniques. In addition, lectures in electronic form are easy to maintain and update; this important property enables high levels of re-usability to be achieved and, to some extent, allows us to combat obsolescence. Furthermore, provided suitable design and development strategies are adopted, electronic lectures can form the basis for the production of ancillary learning support materials (Barker *et al.*, 1995a; 1995b).

Because of their potential cost-effectiveness and their numerous pedagogic advantages, it is our belief that electronic lectures will become a primary mechanism for knowledge and information transfer within

conventional establishments of higher education. In addition, as hinted above, it is our opinion that the electronic lectures which are used to deliver any particular course will also have to act as a foundation supporting the creation of additional learning aids for that course (such as CAL and CBT resources) which can be used on both an individual and/or a small group basis. Using this approach, the very same resources that are used to support local campus-based students could thus also be used by distant learners.

Of course, as a longer term goal, it is important to visualize the role of electronic lectures as a 'stepping stone' towards the ultimate realization of a totally electronic course delivery mechanism within the context of a 'virtual university' environment. Undoubtedly, by the next millennium many staff and students will teach and/or study by means of such an infrastructure.

THREE BASIC APPROACHES

This section outlines three different approaches to the preparation and delivery of electronic lectures. Each one differs with respect to the type of resource used and the kinds of facility which can be provided.

The Book Emulator

Benest and Hague (1993) describe the use of a powerful preparation and delivery tool known as the 'Book Emulator' which runs on a UNIX platform and incorporates a book metaphor. Therefore, during their construction and subsequent presentation (either in a lecture theatre or to an individual student at a workstation) the electronic slides used have much the same appearance as the pages of a conventional book. An interesting feature of this approach is that the slides contained within any given electronic 'lecture book' are accompanied by an audio narrative. Depending on how the slides are used – single stepping (within a live presentation under the control of a lecturer), browsing or continuous play (for private study by students) – the narrative can be either enabled or disabled.

According to Benest and Hague (1993):

> 'the primary motivation for on-line lectures is to produce a lecture that is of higher quality than chalk-and-talk. Quality gains arise from the production of electronic slides that are readable from the back of a lecture theatre, and that definitely indicate specific items without human hands covering up vital material in the vicinity.'

Bearing in mind these comments, as far as these researchers are concerned, a major advantage of electronic lectures is the wide range of 'revelation' techniques which can be employed (that is, the different ways in which the various parts of a slide can be covered and uncovered during an exposition).

They also propose that the ability to use animation within electronic slides is an important attribute which can make such slides much more meaningful than their static celluloid counterparts.

Although Benest and Hague do not necessarily advocate its widespread use, the continuous play presentation mode offered by the Book Emulator could be used to facilitate the automatic delivery of lectures – without any human intervention. Consequently, they have shown that this approach could be used to achieve significant productivity gains, for example, in lecturing time; the time saved could then be used to support a different study mode – such as tutorial discussion or problem solving.

Using commercial packages

A more conventional approach to the preparation and delivery of electronic lectures has been described by Anderson (1995). In his work, he outlines the use of a commercially available package for the delivery of course material. For a number of reasons he strongly advocates the use of Microsoft's PowerPoint (Grace, 1994). In addition to aiding lecture presentations, Anderson emphasizes how easy it is to use this package in order to prepare paper-based course documentation and student handouts. Within the University of Teesside we have been exploring the use of PowerPoint as an in-house standard for course delivery. Many members of staff now use this system as a means of delivering their lectures and making lecture material available to students (and other staff) by means of a local-area network. When asked to comment on his use of this development tool, the author of one electronic lecture course replied:

> 'PowerPoint allows me to produce handouts... copies of the slides... the students get these, 3 slides on an A4 page with room to make notes.... Production of the lectures was no slower than word processing slides, in fact I produced a template lecture and worked off that. The background, transitions etc I use are different for each but if kept the same then the process would be even quicker.... Student reaction has been positive... the colours, effects etc make the material attractive. I've seen students previewing the coming lecture and viewing ones missed.'

Many other academic organizations are also using PowerPoint in a similar way to that described above. Busbridge (1995), for example, is using this system as part of his 'Electronic Course Delivery' project at the University of Brighton; this involves converting 18 physics lectures into electronic form and then augmenting them with sound and video. Similarly, in his 'Lectures on Demand' project at the University of Ulster, Anderson is also exploring the problems of adding audio narrations to his PowerPoint presentations (Anderson, 1995). As is the case in our own work, audio augmentation is intended to compensate for the absence of a lecturer, for example, in situations where the electronic lectures are being used as a support for private self-study by students.