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TEACHING AND LEARNING METHODS IN HIGHER EDUCATION: A GLIMPSE OF THE FUTURE

Tom Bourner and Steve Flowers

Introduction

The aim of this article is to look at the future of teaching and learning methods (TLM) in higher education (HE) over the next decade. The purpose of the article is to develop a viable new vision of the future teaching and learning methods (TLM) that is preferable to the destination towards which we are currently headed [[Note 1](#)].

The problem

The time when teaching staff in HE could simply follow the teaching methods that they experienced as students is drawing to a close. There are several powerful reasons for this: a falling level of real resource per student, an increasing focus on, and publicity about, teaching quality and developments in technologies for communicating and disseminating information.

The same forces are raising the position of teaching and learning methods on the institutional agendas of most universities and other higher education organisations. A declining unit of teaching resource has put the spotlight on teaching methods because teaching staff costs are a high proportion of total costs within universities. Greater focus on, and publicity about, performance indicators of teaching quality have also increased the attention paid to teaching methods. Developments in technologies for communicating and disseminating information have a large potential impact on the practice of teaching because teaching is an activity in which communicating and disseminating information are significant aspects. None of these factors are likely to go away, so it is unlikely that concern about teaching methods in universities will subside. On the contrary, each is likely to become more compelling and so too, therefore, will concern about teaching methods.

Greater effectiveness and greater efficiency in teaching and learning is being promoted at the national level, at local levels and at all levels in between. For example, nationally, [HEQC](#) consistently focused on innovation in teaching and learning as a key to quality enhancement and reduced unit costs [[Note 2](#)]. An example from the other (local) end of the spectrum, is the decision of the [University of Brighton's Business School](#) to develop its own intranet to improve the effectiveness and efficiency of teaching and learning. And an example from 'in-between' is the work of the [Oxford Centre for Staff Development](#) which has, through a range of publications and workshops, promoted 'resource-based learning' within universities.

The question we address in this article is, what will be the effects on teaching and learning methods in higher education of ongoing pressure from the three forces: continuing fall in the teaching unit of resource, continuing developments in technologies for communicating and disseminating information and continuing emphasis on, and publicity about, teaching quality?

The default solution

In this section we want to offer a vision of the future that is likely to emerge through an evolutionary process of incremental adjustments to the pressures in, and on, the HE system:

a) Our students will spend a higher proportion of their time being taught with large numbers of other students. Numbers attending lectures will become larger and seminar groups will become larger. Modular courses will become more common. Lectures will account for a larger proportion of student class contact time. Work with a tutor in small groups will account for a smaller percentage of class contact time [Note 3]. Individual tuition (the academic tutorial) will become (or has become) a thing of the past. There will be a fall in the likelihood that any individual student will ever get to speak on a one-to-one basis with a member of the teaching staff. Many universities will seek to mitigate this outcome by placing more emphasis on personal tutoring systems.

b) The range of courses on offer by each institution will be re-engineered in ways that place more emphasis on work that makes a high financial contribution per student and away from work that yields a low contribution. Work that yields a relatively high financial contribution includes work at first and second year undergraduate level (where student numbers in each course unit are high). For most universities, work that makes a low financial contribution includes many (most?) of their final year options on undergraduate programmes, much of their Master's level work, research degree work and much of their innovatory teaching and learning initiatives. Consequently, many universities will end up teaching only the first year or two of undergraduate degrees of their students who will then take their module credits to complete their degrees, and possibly do postgraduate work, at a 'senior' university [Note 4]. Universities that re-engineer their portfolios of work, in this way, towards first and second year undergraduate level work will move towards institutional profiles that look rather like community colleges on the USA model. The upshot will be a two-tier system based on the proportion of teaching that takes place at the 'senior' level: there will be senior universities carrying out a relatively high proportion of the teaching at final year undergraduate level and above and other universities with a relatively high proportion of their teaching at first and second year undergraduate level.

So far, the emergent vision could be accounted for by only one of the forces described above; a continuing fall in the unit of teaching resource. Pushed far enough, that force alone could produce (a) a typical student experience dominated by lectures and large group seminars, and (b) the transformation of most universities into community colleges [Note 5] focusing on first and second year undergraduate work with a minority of universities offering senior level (final year undergraduate and postgraduate) work.

The second force is increased focus on, and publicity about, quality in teaching. This will prevent an escape for universities from the implications of a declining unit of resource through simply reducing the level of educational input. Let us illustrate this with the (*reductio ad absurdum?*) suggestion that if the unit of resource continues to fall then eventually we could reach a position where universities simply present new students with a set of textbooks (or a reading list!) together with a note of the date of the examinations - and that would be the extent of their contribution to the educational experience of their students. On this line of reasoning, it is easy to manage a reducing unit of resource: simply reduce the level of educational input. External monitoring, with consequences in terms of publicity and funding, should ensure that this solution is unavailable to universities. It is not a coincidence that the decline in the unit of teaching resource has been accompanied by closer monitoring of teaching quality.

If we now add in the third force the picture of the future becomes much bleaker. A higher education system that is increasingly reliant on lectures and large group seminars is increasingly vulnerable to developments in technologies for communicating and disseminating information.

The Internet, in particular, offers a potential means of information dissemination which could spell the end of the lecture as a primary means of the delivery of knowledge. According to Sir Douglas Hague [Note 6]:

"...the more universities in the UK turn their backs on what developments in information and

communication technology make possible, the more they will face international competition. There is nothing to prevent distance-learning degrees from being awarded by universities in Berlin, Harvard, Tokyo or Moscow." (Hague, 1991, p.48)

Wherever the declining unit of teaching resource whittles down the core learning outcomes of a university mainly to information dissemination, its work becomes vulnerable to replacement by open learning (possibly originating from more prestigious universities) via the Internet. Many (most?) universities will not survive this competition. Along the way, there is likely to be a host of institutional take-overs and mergers. Retrenchment of HE towards the single learning aim of disseminating facts and ideas will permit the globalisation of higher education which will eliminate many (most?) universities as independent institutions.

We conclude that current Internet developments (including its much greater use) mean that increased reliance on mass lectures and impersonal seminars is likely to be a disaster for many (most?) universities.

This section has painted a picture of the future of teaching and learning and in HE that is gloomy unto despair. First a declining unit of resource forces most universities to concentrate on the knowledge dissemination part of teaching and when this has gone far enough developments in IT will eliminate those universities. The future for such universities could be described by the expression: "Life's a bitch!... then you die". This apocalyptic version of the future can reasonably be termed the 'Doomsday Vision'! But how realistic is this vision? One way of assessing its plausibility is by looking for any evidence *so far* of its emergence. The elements that comprise the vision will unfold at different paces. Some of the elements can be implemented almost immediately by academic staff, some require decisions at course level, some at departmental level, some at school or faculty level, some institutional level and some are part of an evolutionary process following decisions at all those levels. Academic staff can *immediately* decide to spend less time with individual students. There is a slightly greater time-lag in course teams or departments deciding to allow an increase in the size of seminar groups. The time-lag for Schools or Faculties in deciding to cut 'uneconomic' options on final year undergraduate courses is yet longer. And so on. We believe that we see much evidence of the emergence of those elements of the vision that can be implemented rapidly.

Another response to the question "How realistic is this vision?" is in terms of probabilities. What is its likelihood? That is for the reader to assess on the basis of their own reading of the situation and their experience to date. We contend that if there is only a 50:50 chance of this vision materialising then we need to find an alternative future and with some urgency.

If we allow it to be so, our future will be decided by an evolutionary process of *natural selection*, which we believe is as powerful for effecting change in organisational species as it is for effecting change in organic species. However, natural selection is the path of nature "red in tooth and claw". And we want to avoid the pain of that evolutionary journey. Not only do we find the destination of our current road unappealing but we also wish to avoid the distress that will be experienced along the way.

A strategic solution

The vision above is a picture of a *constraint-driven* future. It is a consequence of reaction to the problems produced by the emergent pressures. In this section we want to offer an alternative vision. It is one that starts with aims (rather than constraints). Rather than accepting the default future presented above we are seeking a viable alternative to which we can direct our energies in a proactive way. To that extent, it is a strategic vision of the future.

Universities have two core processes: teaching and research. The output of teaching is learning and the output of research is a contribution to knowledge. What are the learning outcomes that we want for our students? We have a clear view of the learning aims of higher education. They are shown in table 1:

Table 1: Learning aims of Higher Education

Disseminate knowledge	Develop the capability to <i>use</i> ideas and information	Develop the student's ability to <i>test</i> ideas and evidence	Develop the student's ability to <i>generate</i> ideas and evidence	Facilitate the <i>personal development</i> of students	Develop the capacity of students to <i>plan and manage</i> their own learning
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Our rationale for each of these aims is:

1. Disseminate knowledge.

We suspect that for most people who have not experienced higher education the main purpose of HE is to deliver information and ideas at a level beyond that which is possible at school. One of the things that distinguishes a university is scholarship and it is reasonable to expect that within a university the information and ideas that are conveyed should be up-to-date (i.e. the product of on-going scholarship).

2. Develop the capability to use ideas and information.

Understanding can occur at different levels: intellectual assent to a concept or idea does not necessarily encompass the ability to use it in a range of applications. It is sometimes said that the "ability to apply a concept goes beyond mere intellectual assent to it". Certainly the ability to use a concept skilfully goes beyond intellectual assent. The capacity to use ideas and information involves moving beyond comprehension of a principle in the abstract, to an appreciation of its range of applicability: where, when and how it is appropriate to use it.

3. Developing critical faculties

The rationale for the development of critical faculties as a major part of the teaching mission of higher education has been forcefully argued by Sir Douglas Hague :

"Academics must believe that acquiring the ability to test ideas and evidence is the primary benefit of university learning" (Hague, 1991, p.64)

The ability to test ideas and evidence is a significant transferable skill. Teaching students to use their critical faculties means that they will be less likely to be taken in by assumptions, assertions and unsupported statements. It is significant that this aim is a skill, that this aim uses the word develop rather than disseminate and that it introduces a clear relationship between teaching and research which was absent from the first two aims above.

4. Develop the student's ability to generate ideas and evidence.

This aim complements the above aim of developing the student's ability to test ideas and evidence. Developing critical faculties is one side of the equation and developing creative faculties is the other side of the equation. Answering questions is valuable but so too is finding the right questions to ask. There is a parallel between the aims of research and teaching here: each is concerned with both theory-building and theory testing [Note 8].

5. Facilitate the personal development of students

Personal development impacts in a major way on the effectiveness of people in their professional roles. As lecturers in a business school we sometimes ask managers to think back to the most effective manager that

they have ever had and the least effective one and then to identify the differences. They very rarely offer differences in terms of knowledge of marketing, statistics or corporate strategy etc. Instead, they usually offer qualities for which the pre-requisite is self-knowledge and the ability to act on that self-knowledge ('flexible', 'calm in a crisis', 'visionary', 'developer', 'inspirational', etc.) [Note 9].

6. Develop the capacity of students to plan and manage own learning.

The rationale for this aim is well-expressed by the following statement in a book entitled 'Action Learning in Higher Education':

...our ultimate goal in higher education must be to encourage students to be responsible for, and in control of, their own learning, and to make the conceptual change from learning a science (i.e. a subject or discipline) to becoming a ... problem-solver, independent of their teacher's attitudes, beliefs and methodologies. (Zuber-Skerritt, 1992, p.24) [Note 10].

The idea embodied in those words resonates well with the old saying that "if you give a person a fish you feed them for a day and if you teach a person to fish you feed them for a lifetime".

The aim of developing the capacity of students to plan and manage their own learning has to date found its loudest expression in courses of higher education based on learning contracts. More generally, it has found expression in the growing importance of continuing professional development within the graduate professions and the growing commitments of governments to the idea of lifelong learning.

A hierarchy of learning aims? We are reluctant to see the six learning aims identified above in terms of a hierarchy. We believe that they are each important and that it is the challenge for us as educators in higher education to achieve as many of those aims as we can.

The only hierarchy is in terms of *more* or *less*. An inferior educational experience will embrace few of these aims; at the lowest level it will only deliver information and ideas. A superior educational experience will embrace more of them. **Quality** of education is defined in terms of *all* of those aims.

Our fear is that the falling unit of resource in higher education is causing us to become less ambitious in terms of the range of learning aims that we seek to achieve, with the educational experience of our students consequently becoming impoverished. A measure of our success, both educationally and institutionally, is the **range of learning outcomes** that we can achieve with our students. Our greatest fear is that we will be driven back towards one learning outcome: 'information dissemination' and then IT renders universities unnecessary in achieving that outcome. That is the 'doomsday vision'.

A strategic approach implies moving in the direction from *aims* to *means*. Each of the above list of potential learning aims suggests a large range of teaching methods to reach the outcome. Restricting ourselves to only ten of the more common teaching methods for each gives the following:

Table 2 Teaching and Learning methods [Note 11] for different learning aims

Learning aims

	Disseminate knowledge	Develop capability to <i>use</i> ideas and information	Develop the student's ability to <i>test</i> ideas and evidence	Develop the student's ability to <i>generate</i> ideas and evidence	Facilitate the <i>personal development</i> of students	Develop the capacity of students to <i>plan and manage</i> their own learning
Ten common teaching methods	<ol style="list-style-type: none"> 1. Lectures 2. Up-to-date textbooks 3. Reading 4. Handouts 5. 'Guest' lectures 6. Use of exercises that require students to find up-to-date knowledge 7. Develop skills in using library and other learning resources. 8. Directed private study. 9. Open learning materials. 10. Use of the Internet 	<ol style="list-style-type: none"> 1. Case studies 2. Practicals 3. Work experience 4. Projects 5. Demonstrations 6. Group working 7. Simulations (eg computer based) 8. Workshops 9. Discussion and debate 10. Essay writing 	<ol style="list-style-type: none"> 1. Seminars and tutorials 2. Supervision 3. Presentations 4. Essays 5. Feedback on written work 6. Literature reviewing 7. Exam papers 8. Open learning 9. Peer assessment 10. Self-assessment 	<ol style="list-style-type: none"> 1. Research projects 2. Workshops on techniques of creative problem solving 3. Group working 4. Action learning 5. Lateral thinking 6. Brainstorming 7. Mind-mapping 8. Creative visualisation 9. Coaching 10. Problem solving 	<ol style="list-style-type: none"> 1. Feedback 2. Experiential learning 3. Learning contracts 4. Action learning 5. Learning logs 6. Role play 7. Structured experiences in groups 8. Reflective documents 9. Self-assessment 10. Profiling 	<ol style="list-style-type: none"> 1. Learning contracts 2. Projects 3. Action learning 4. Workshops 5. Mentors 6. Reflective logs and diaries 7. Independent study 8. Work placement 9. Portfolio development 10. Dissertations

It is clear from table 2 that different teaching methods are appropriate to different learning aims. There is some overlap, to be sure, where one method serves the purposes of more than one aim but possibly less overlap than might be anticipated.

An important message of table 2 is that when there are disagreements about different teaching and learning methods, the source of the disagreements is likely to be found in differences in the learning aims that are being assumed.

Our task is to find a set of teaching methods that will be more successful than the 'doomsday vision' in terms of (a) quality of teaching and learning, (b) lower unit cost, and (c) responding to the technological developments in communicating and information technology. That is the target for the rest of this article.

There are other visions of the future of teaching and learning and learning methods in higher education. Perhaps the two leading ones are those that advocate 'resource-based learning' and those that advocate 'IT based learning'. The leading proponents of 'resource-based learning' are at the [Oxford Centre for Staff Development](#) where they argue the case primarily in terms of "teaching more with less" i.e. a declining unit of teaching resource. A leading proponent of the IT solution is Sir Douglas Hague who warns of the demise of universities if they fail to embrace the new information technologies:

"It is because I am keen that the universities should survive both as competitors and complements of the knowledge industries that in the Paper I try to identify for universities the challenges which they will meet in the coming decades. I do so not in the hope that they may fail in meeting them, but that they may succeed." (Hague, 1991, p9)

[Lest the most potent source of that competition be forgotten it is worth repeating Hague's warning: "There is nothing to prevent distance-learning degrees from being awarded by universities in Berlin, Harvard, Tokyo or Moscow." (Hague, 1991, p48)]

Already it is possible to pull off the World Wide Web information for teaching and learning originating in other countries. We are witnessing the start of the globalisation of HE. Increased competition through the globalisation of markets is a common phenomenon in many industries where it has provided part of the rationale for downsizing, delayering and process re-engineering. Advances in information technologies are making global communication and information dissemination much less costly. A tidal wave of HE globalisation is inevitable if HE is only about the delivery of knowledge or the dissemination of information.

In presenting the problem which this article addresses, we started with the consequences of a falling unit of teaching resource, added in the effects of closer monitoring of teaching quality and then brought in the effects of new information/communications technologies. In presenting our vision of what teaching and learning methods could alternatively become, we will reverse this order.

Developments in the capabilities and range of applications of the information and communications technologies are being accompanied by a rapid decline in their costs:

According to Stross (1997):

"Even measured against the development of other significant industrial technologies, the record of improvements in semiconductors stands out. Beginning with the first planar transistors in 1960, in only 35 years the semiconductor industry has reduced the cost of a transistor by ten-million-fold. From the vantage of the present, it's not difficult to nod and agree that such an astonishing development would probably create a few business opportunities." (Stross, 1997, p. 48)

Since the mid-1970s the cost of producing a chip with undiminished capability has halved about every two years. The reduction in manufacturing costs has been accompanied by "other happy effects as circuits were squeezed into ever smaller spaces: faster speeds, improved system reliability, less power consumption" (Stross, 1997).

The continuing fall in the costs of information technologies makes them the obvious way of coping with the declining unit of teaching resource.

"Most other institutions in society are going to become much more efficient as a result of information technology, and at some point the schools will too. The fit is just too good to ignore: The PC, like education, is devoted to information - how to get it, how to organize it, how to evaluate it, how to use it how to keep it at hand, how to disseminate it." (Gates, 1996, pa. 214)

Yet the extent of take-up of those technologies for teaching and learning within universities remains very small. How can we explain the reluctance of staff (and students) to embrace the new technology for teaching and learning purposes? Staff have happily taken to the use of computers for word processing and the use of the Internet for research [Note 12]. This fact undermines explanations of reluctance based on technophobia and Luddism.

A more plausible, and neglected, explanation can be found in the writings of John Naisbitt in the mid-1980s. Naisbitt (1984) suggested that increases in high technology create a compensating need for more

of the human touch. He continued by pointing out that without the appropriate human touch, the adoption of new technology on a widespread basis is rejected:

"What happens is that whenever new technology is introduced into society, there must be a counterbalancing human response - that is, high touch - or the technology is rejected. The more high tech, the more high touch,..."

and

"Whenever institutions introduce new technology to customers or employers, they should build in a high touch component: if they don't, people will try to create their own or reject the new technology." (Naisbitt, 1984, p. 39 and 43)

Unfortunately (or fortunately) the acceptance of an **increasing** level of technology seems to be dependent on a concomitant increasing level of human interaction. It is the yin of high touch that seems to permit the yang of high tech. We suspect that they move in balance or not at all.

The acceptance of information technologies into teaching and learning methods becomes the challenge of how to achieve more human interaction in the context of reducing resources per student.

One approach would be to accompany the higher level of technology with more seminars and tutorials. This seems to be what Hague had in mind when he wrote that:

"The key role of the university lies in interaction; the most important element is interaction with tutors, tutorials and social activity." (Hague, 1991, p45)

If you accept Hague's arguments then education in universities is likely to move towards a combination of two elements: greater use of information technology combined with more "interaction with tutors, tutorials and social activity". This is a "high-touch/high tech" vision that resonates strongly with Naisbitt's conclusions.

We go part of the way with Hague and then our visions diverge. We agree with the inevitability of the high-tech/high-touch future for the universities that survive the evolutionary process. We believe that education in universities is likely to move towards elements of what we now see as distance learning delivered via modern means of information and communication technology, in particular the Internet. But we see this being combined with new forms of personal and social interaction. Having studied and practised management development in recent years we believe that new forms of social interaction have recently been developed which are more efficient than the traditional seminars and tutorials and more effective in achieving the six learning aims identified above. Our vision is designed to achieve all of the learning aims listed. It is a vision of a high-tech/high-touch combination of teaching and learning methods comprising;

1. Open learning delivered via the Internet
2. Large group workshops
3. Action learning sets

Let us say a few words about this particular cocktail of teaching and learning methods:

More and more teaching materials are becoming available on the Internet. So far this has been a largely at the instigation of individual teachers and individual institutions [\[Note 13\]](#). For example Gates wrote in 1996:

"At the University of Washington, lesson plans and assignments for some classes are posted on the World Wide Web. Lecture notes are often published on the Web too, a free service I would have loved in my college days." (Gates, 1996, p. 222)

In the past, the greatest barrier to universities and their students enjoying the well-recognised benefits of the now mature processes of Open Learning has been the cost of developing open learning materials. As more and more teaching materials become globally available on the Internet this cost barrier is falling. If the key to coping with a falling unit of resource is the use of IT (especially the Internet [\[Note 14\]](#)) then the key to gaining the wide acceptance of staff and students of the new information and communication technologies for TLM is to integrate them with a 'high touch' component.

What form will the 'high touch' component take? Having had considerable experience with traditional seminars, tutorials and personal tutoring we are convinced that action learning has much more to offer in terms of meeting the learning aims listed above. Action learning is an approach that combines the following four elements: (a) learning drawn from working on real problems [Note 15], (b) it involves a group of others who are also engaged with real problems, (c) individuals retain responsibility for their own individual problems and (d) it includes the attempt to implement (and thereby test) the ideas developed within the action learning set.

Action learning can be an effective vehicle for developing creativity (it is very effective in developing the capacity to ask productive questions and much of creativity is about asking new questions from a different mindset), personal development (particularly the development of self-'knowledge') and it can be used as a vehicle for helping people to plan and manage their own learning. We also believe that it eliminates the need for a system of personal tutoring as (in addition to its role as a vehicle for learning) an action learning set also acts as a powerful self-help group.

Workshops are included in the 'cocktail' as they offer an effective way of achieving some of the aims that are more difficult to achieve by other means, particularly those to do with developing the ability to *use* information and ideas. They are included in the form of *large* group workshops as it has become clear over the last few decades that private sector organisations (in the fields of training and development) have found ways of getting results with large groups that we once thought were possible only with small groups. In particular, they have discovered ways of achieving high levels of personal interaction through the large group experience. How large is "large" in this context? We have attended large group 'training' events with over a hundred people where processes were used that produced high levels of interaction between people. In this context the size of the group is constrained by the size of the student cohort and/the size of the available venue. Higher education (possibly education at all levels) has much to learn from some of these private sector training and development organisations.







In summary, our vision would replace a future based around lectures, seminars, tutorials and personal tutoring by a high tech/high-touch future based around the Internet, action learning and large group workshops.

Let us check this vision against each of the three forces: increasing emphasis on quality, technological developments and falling unit cost.

Quality of teaching and learning. We have argued for an ambitious view of quality defined on a broad range of learning outcomes. Table 3 relates the learning outcomes to teaching methods. By cross-tabulating learning outcomes with teaching methods we ensure that no learning outcome is neglected by default. This ensures that we are clear about both the learning outcomes and the teaching methods aimed at achieving them. In the table we have identified only two learning outcomes for each of the 'teaching' methods in the vision. This is not to suggest that each of the methods cannot contribute to some of the other aims, but only that we are being parsimonious in our claims.

For people who are not familiar with all of these teaching methods it will be necessary to say some words about each to sustain our claim that they are appropriate vehicles for the identified learning outcomes with which they have been associated in table 3:

Table 3: Two Learning Aims For Each Teaching Method

	Disseminate knowledge	Develop the capability to <i>use</i> ideas and information	Develop the student's ability to <i>test</i> ideas and evidence	Develop the student's ability to <i>generate</i> ideas and evidence	Facilitate the <i>personal development</i> of students	Develop the capacity of students to <i>plan and manage</i> their own learning
Next generation open learning delivered and supported via the internet						
Large group workshops						
Action learning sets						

Open learning delivered via the Internet. It is clear from the work of the [Open University](#) and [Birkbeck College](#) that distance learning can provide an effective means of disseminating information and developing critical faculties at a graduate and postgraduate level.

Large group workshops. The term 'workshop' implies application and use. Workshops can be used to provide people with practice and 'hands on' experience of using the information and ideas delivered by other means (in our case, distance learning). Workshops are an effective means of developing skills in generating ideas and evidence. This can be done through dedicated workshops on topics such as 'creative problem-solving' or by using processes that access creativity (eg brainstorming, metaphor, Synectics etc.) on workshops that nominally address other topics.

Action learning sets. In table 3 action learning is shown as the means of achieving the learning outcomes of 'personal development' and 'developing the capacity of students to plan and manage their own learning'. Action learning originated in the field of management development [\[Note 16\]](#). It is a method of accelerating the process of learning from experience. It provides a means of reflection and gaining feedback on the outcomes of actions taken and decisions made:

"An important thing happens every time that we make a decision -we come closer to knowing who we really are. That's because we pour our ethics, priorities and values into every decision. We become, in essence, some total of all the decisions we make in our life." (Dawson, 1994, p. 16)

The difficulties that we experience in taking actions to resolve the problems that we face often, and on reflection, turn out to have their origins within ourselves. Through the action and group reflection, action learning provides a means of recognising how we block and limit ourselves in what we try to do and it provides support for making changes [\[Note 17\]](#). In this way action learning can be a powerful form of personal development.

How can action learning be used to develop the capacity of students to plan and manage their own learning? If students are given projects involving planning and managing their own learning then action learning groups can provide support, access to the experience of others, ideas and challenge in testing out ideas to enable students to get the most learning out of the experience. To date, when action learning has been used in higher education it has been with postgraduate part-time students. For example, action learning has been used at some universities (such as the universities of [Brighton](#) and [Salford](#)) to support part-time research

degree students in planning and managing their research degree programmes. It has been used with Masters level students (eg at the [City University London](#) and [Manchester Metropolitan University](#)). Action learning sets have been used to support programmes of 'self-managed learning' [Note 18]. It is clear how action learning can be used with postgraduate and part-time students. How can it be used with other students on other programmes of study? Here are a few examples:

- it can be used to support the learning from project work at any level of any course.
- it can be used on modular courses as a means to enable students to integrate the learning at each level (eg at the conclusion of each level the students can be asked to produce a report showing how the modules taken so far relate to each other and to the student's learning needs and career aspirations etc).
- action learning can be used as a means of supervising students on sandwich placements to help them to get more learning from the experience.
- action learning can be used to enable final year students to develop a learning contract containing a plan for their continuing professional development. This is one way that undergraduate programmes could be integrated with an increasing focus on lifelong learning.
- action learning can be used to enable students to get more learning from the experience of preparing portfolios of evidence for the accreditation of prior learning (APL) and the accreditation of prior experiential learning.

Technological developments. In this vision, IT is embraced as an accompaniment to teaching and learning methods involving greater human interaction. We expect the key IT development to be the Internet and, in particular, the Web. It is this which offers unparalleled opportunities for information dissemination at low cost. Combined with developments in methods of distance learning the Internet is potentially very powerful for the information dissemination dimension of teaching and learning.

Falling unit of resource. A declining unit of resource means increasing student:staff ratios i.e. academic staff are becoming scarcer relative to students. As academic staff become relatively scarce it seems important that they should be doing the things in which they have a comparative advantage. This suggests that we should *substitute against academic staff where it is easy to do so (eg dissemination of information) and concentrate our use of academic staff in those areas where it is least easy (eg to achieve those learning aims where direct human interaction is essential)*. A high tech/high touch solution to the problem of the falling unit of resource allows us to secure the gains of working according to the principle of comparative advantage.

Let us look at the high tech side first. This side takes the form of integrating open learning with the Internet. In the past, the biggest barrier to our gaining the benefits available from more use of open learning has been the high cost of developing open learning materials. As more and more teaching materials become available world-wide on the Internet that cost barrier is falling.

It is the 'high touch' component that is the expensive part within any high tech/high touch vision of the future. We believe that the flaw with Hague's vision is in the cost of the high-touch side of it: it is increasingly difficult for universities to finance seminars and tutorials, and even the replacement of lectures by using modern communication and information technology would be unlikely to generate sufficient surplus to do so. That is part of the rationale for using large group workshops and action learning sets rather than seminars and tutorials respectively [Note 19].

The teaching and learning methods in the high-tech/high touch future that we envision would be less expensive than the current system based on the 'treadmill lecture', the large-group seminar and expensive personal tutoring - we believe that in most universities the academic tutorial is already dead or mortally wounded; a casualty of the declining unit of resource.

In table 4 the two models are shown together on a part by part basis. This enables their costs to be compared.

Table 4 Comparison of elements of two models

	Traditional model	A vision of TLM
Part A	Lectures	Next generation open learning delivered and supported via the Internet
Part B	Seminars	Large group workshops
Part C	Tutorials (Academic and/or personal)	Action learning sets

In part A of the table, lectures are likely to be more costly to deliver materials than by private study via the Internet so long as it is possible to use and modify existing teaching materials on the Net rather than create Open Learning materials from scratch.

In part B, there is a limit to the size that traditional seminars can reach without becoming completely ineffective as a means of learning through group discussion, whereas large group workshops are more versatile in function and don't have the same size constraint.

Lastly, in part C, the one-to-one tutorial will necessarily be more expensive than action learning sets comprising small groups of students. [Bourner and Ellerker \(1993, 1994\)](#) show how an action learning set was used to economise on costly one-to-one placement supervision and at the same time improve the quality of the supervision and placement experience of the students.

We believe that we have found a vision of teaching and learning in HE that can deliver a higher quality student experience, will permit the adoption of the information technologies and do so at a lower cost than even a 'pared down' version of the lecture/seminar model.

How would the working life of lecturers be affected?

This may seem an odd question to ask at this point and hardly the most important one. We think otherwise; we see it as a key question because unless our vision yields a viable prospect of a working life that academic staff see as attractive to them (and more attractive than what they have at present or are likely to have in the future) they will resist and frustrate movement towards it. We are looking for the opposite response: where academic staff seeing the benefits of this future over any likely alternatives wish to find ways of moving towards it.

The current reality for many HE lecturers is one of rising levels of class contact within their workloads, rising levels of lecturing within their class contact and rising numbers in student groups. Rising student numbers gives rise to the paradox of more class contact time for staff combined with less meaningful contact with students (eg. less contact with individual students). The falling unit of resource will exacerbate this situation. The consequences are a rising 'treadmill' element in the job, reducing time available for scholarship and research and less opportunity for meaningful interaction with students.

By contrast, our vision implies that lecturers who prefer to spend their time reading, writing and working at a

screen would do more of the Internet/Open Learning work and their working lives would become much more like the working lives of 'lecturers' at the Open University. And, those with a preference and a comparative advantage in personal interaction would facilitate most of the action learning sets and the large group learning events [Note 20].

An incidental benefit of our alternative vision is the grouping of staff class contact into larger blocks (action learning sets of at least 3 hours duration or full days for the workshops). This would free staff from the fragmentation of working time associated with the one hour lecture and the one hour seminar, which are the building blocks of most of the current system. Consolidation of these 'penny packets' of time into larger blocks would have the effect, as a by-product, of consolidating non-class contact time into larger blocks which are more valuable for sustained scholarship and research.

How would the learning lives of students be affected?

There would be more variety in the learning lives of students than there is at present in that large part of higher education where the lecture and the seminar are the dominant teaching processes. They would spend more time in independent learning using materials delivered via the Internet. For the most part, they would be free to learn *wherever* they had access to a computer terminal or personal computer. For the most part, they would be free to learn *when* they wish to (eg midnight or early mornings if they wished). In those respects they would enjoy the well-known benefits of open learning. However, every couple of weeks they would attend a half-day session with their action learning set and about once each week they would assemble for a 'large group workshop' lasting the whole day. The large group workshop would facilitate an awareness of being part of a larger learning community.

The action learning sets could serve different purposes at different stages of a course. At an early stage they could be used to support project based learning. On a large modular course the action learning set could be used to support (and challenge) the development of an 'integrative reflective document' whereby a student integrates the learning from the modules that they have chosen by reflecting on the relevance of what they have learned to their own personal and professional aspirations. At the end of a course of study they could be used to develop a 'learning contract' for their continuing professional development.

Compatible with modularity?

Yes, very. As suggested above, the action learning sets could provide a vehicle for the development of an 'integrative reflective document'. Students on modular schemes could be asked to complete an action learning module through which they produced a document that (a) made sense of the package of modules achieved (eg explored their relevance to themselves, their background, their interests, their development and their careers and their non-work futures), (b) developed a learning 'contract' embodying their plans for their continuing professional development (to be followed after graduation). This could be the capstone of their course and would be evidence that they had achieved objectives 5 and 6 above.

Our one small reservation about modularity is that, instead of moving from vision to strategy to structure, some modular schemes appear to start with structure. Adopting a restrictive uniform structure within modules could lock institutions into a system of teaching and learning methods built of lectures, seminar and personal tutorials. However, there is clearly no conflict between our vision and modularity per se.

Summary and conclusions

The aim of this article was to reflect on possible futures of teaching and learning methods in HE as we approach the new millennium. What has emerged from the visions are implications for the nature of HE and the form and structure of the higher education system.

This is not too surprising, as teaching and learning methods are the core processes by which a university achieves the teaching part (as distinct from the research part) of its mission as a university.

On the basis of our current trajectory, in the near future (the next 5 years?) the educational experience of most students will become one of attending very large lectures and large seminar groups [Note 20b]. A polarisation will develop between universities that do only junior level (first and second year undergraduate) work and those with a high proportion of their students doing senior level (final year undergraduate and postgraduate) work. You can use your own judgement about which universities are likely to be in which part of that bipolar distribution. In the more distant future (the next 10 years?) retrenchment of universities towards the single learning aim of delivering information and ideas will permit the globalisation of higher education which will eliminate many (most?) universities as independent institutions. Which universities will be survivors? Those that are most attuned to the potential of the Internet as the new medium of communication and information dissemination. Paradoxically, this is unlikely to be the universities who have placed most emphasis on teaching and learning but rather the research universities. We say this because our research on the use of the Internet by academics suggests that it is the active researchers in universities who are developing greatest facility with the Internet. They are the ones who will have developed the skills in the use of the Internet which offers the means of institutional survival.

Without a better vision of the future we are condemned to the emergent 'doomsday vision'. It has been written that '*Where there is no vision, the people perish*' [Note 21] Without an alternative vision we believe that many universities will perish.

The doomsday vision is a picture of a *constraint-driven* future. It is a consequence of piecemeal reaction to the emergent pressures. In this article we have also sought to develop an alternative vision - one that starts with aims, then looks at different means of achieving those aims and finally makes some choices in the light of the key constraints. To that extent, our alternative is a *strategic* vision of the future.

The learning aims we seek to achieve are to:

1. Disseminate knowledge.
2. Develop student capability to use ideas and information.
3. Developing critical faculties (i.e. the ability to *test* ideas and evidence).
4. Develop the student's ability to *generate* ideas and evidence.
5. Facilitate the *personal development* of students.
6. Develop the capacity of students to plan and manage own learning.

There is a wide range of teaching methods available for achieving each of these aims. We have drawn from recent developments in the fields of higher education and management development to find the most effective and efficient combination of methods: open learning via the Net, large group workshops and action learning.

We believe our vision offers a future for many institution that would not otherwise have one. We believe that it beats the doomsday vision on all significant counts. The elements that comprise our vision are clear and well-defined. Our vision offers a way of raising the quality of higher education that students experience, reducing unit cost and embracing the new information technologies. It is a vision that offers both improved quality of working life for the academic staff and improved quality of academic life for the students. It is, however, a vision with a large unanswered question: how do we get to there from here?

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Notes

1. Our emphasis throughout is on classroom based subjects rather than laboratory based subjects. There are three reasons for this: (i) the large majority of students in HE are studying classroom based subjects, (ii) it is the area of HE of which we have most experience, and (iii) even students enrolled on laboratory based subjects spend a substantial amount of their contact time in classroom based activities.
2. Combining the work on quality of [HEQC](#) and [HEFCE](#) into [a single agency](#) is likely to raise rather than diminish the pressure for greater effectiveness and efficiency from the 'centre' of the HE system.
3. Lectures will also account for a larger proportion of staff class contact time and as it does so it will become more of a treadmill, information-giving, process than at present.
4. This process will be facilitated by the growth of modularity and credit accumulation and transfer schemes.
5. It is not a dishonourable future (for a sympathetic account of that future see page 2 of the Guardian Higher Education Supplement on 5 November 1996)
6. Hague was Chair of the [Economic and Social Research Council](#) during most of the 1980s. [At the time of writing] He is now at Templeton College, Oxford.
8. Learning is concerned with generating and testing personal theories and research is concerned with

generating and testing theories in a way that contributes to shared knowledge.

9. For an account of how self-knowledge contributes to effective management (defined in terms of contribution to the commercial success of organisations) see [Bourner \(1996\)](#).
10. [Zuber-Skerrett, O. \(1992\)](#) Action Learning in Higher Education, London: Kogan-Page.
11. Most of these methods were suggested at a session ran by one of the authors at the Teaching and Learning Methods Conference at the University of Brighton in July, 1996.
12. This is shown in our own research on academics uses of the Internet - we are currently writing up the results of a survey of which academics use the Internet and for what purposes.
13. Eventually a central body, such as [hefce](#), is going to realise the powerful external benefits that this could convey and provide significant incentives for putting teaching materials on the Net.
14. It is interesting how the doyen of the advocates of IT society, Bill Gates, has shifted the focus of Microsoft, arguably the most successful IT company in the world, towards the Internet.
15. I.e. those that exist beyond their pedagogic significance.
16. The term 'action learning' was first used by Reg Revans in the mid 1940s in describing a scheme for enabling colliery managers to learn with and from each other in resolving colliery problems and managing the solutions ([Revans, 1945](#)).
17. For a fuller account of how action learning can be used to facilitate self-development see [Bourner \(1996\)](#).
18. For example, at Roffey Park management centre.
19. The other part of the rationale is that they would be more effective in achieving a wider range of the learning aims shown in [table 1](#).
20. We believe that there is a strong positive relationship between what people get fulfilment from doing and what they are good at. If this is correct then a situation where staff are enabled to do more of the work that they prefer should be also be more effective, productive and efficient.
- 20b. If group discussion is the purpose of seminars the effectiveness of seminars is likely to be inversely related to seminar group size, if only because each member of the group gets less 'airtime'.
21. Proverbs, 29, 18.

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