

## **CHANGES AND CHALLENGES TO HIGHER EDUCATION IN THE NEXT DECADE.**

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**Abstract:** *The nature and role of Higher Education within a society is always evolving, as society itself changes. If, for example, economies are changing to being knowledge based, universities are a key element, since they are the holders, the creators of and the disseminators of knowledge. This paper seeks to identify some of the changes in Higher Education that have already occurred in some countries and their consequences e.g. commercialisation, globalisation and harmonisation.*

**Key words:** *Higher Education, changes; challenges, decade, commercialisation, globalisation, harmonisation, Bolonga, agreement, accord, knowledge economy, progress, e-learning.*

### **INTRODUCTION**

The nature and role of Higher Education within a society is always evolving, as society itself changes. The author believes progress is not synonymous with change alone, but that progress is achieved by change for the better. This paper seeks to identify some of the changes in Higher Education that have already occurred in some countries and which may arise in others in the future. It is not intended to be an exhaustive list, nor is it specific to any one country. Some of the changes may be more welcome than others - some may not be welcome at all and resisted.

### **CHANGES TO HIGHER EDUCATION**

#### **1. Commercialisation**

One of the changes is the new way in which some countries regard the role of Higher Education in their economies. Whilst manufacturing will always play a central role, many of the traditional industries are now no longer centred in Europe. In the U.K. for example, the mass production of steel has virtually disappeared, as the Far East has developed its steel industries. Sheffield, once the centre of all aspects of U.K. steel production, now has only a few plants remaining - mostly producing relatively small amounts of high quality, special steels and alloys. Anticipating these changes, some European governments looked to a change in the basis of their economic power and decided that knowledge based economies - using knowledge as a commodity - were viable [1]. One can see the results of this, e.g. the WWW and the rise of the dot.com companies.

Once knowledge becomes a core element in an economy, then knowledge providers play a pivotal role in national economic life. When economies change from being manufacturing based, clearly universities are a key element, since they are the holders of knowledge, the creators of new knowledge, the disseminators and teachers of knowledge and the source of the next generation(s) of knowledge providers.

Importantly, universities do not only disseminate their knowledge within the walls of their own institutions, but also much more widely, through their graduates when they enter their careers, with the ability to use their knowledge and create new opportunities in business, commerce and engineering. This may give universities a very powerful argument for obtaining increased funding, for example, but it can lead some governments to decide that universities are too important to be left to their own ways. It may be thought, as in the U.K., they need to be "managed" to direct their energies to supporting the economy.

The UK government is very much a 'manager'<sup>1</sup> of public services with a multitude of targets, performance indicators and assessment procedures, not just in Higher Education, but also in schools, local government and the health services: The government argues it is necessary to manage public services for efficiency and for accountability, since the public services are financed by public money (taxation). The public has a right to expect 'value for money'. Since the Government sets the targets

according to its political agenda, however, it is also a way of directly controlling the effort and direction of, for example, research and the assessments are a way of ensuring the targets are met. The public services are very closely controlled within the overall context of a proclaimed 'market economy'.

U.K. Higher Education has a Research Assessment Exercise (R.A.E.) - where every academic is set targets for research and if they are not attained or, if it is thought by university authorities an academics work may not be perceived by an assessment panel as relevant, then an academic may be deemed 'not research active' which leads to all sorts of problems e.g. lack of promotion. The reward for a good return for the R.A.E. was increased funding for universities with top rated departments (4, 4\*, 5 and 5\*). This year, unfortunately, for the period 1996-2000, because of the way universities arranged their reports, so many of the academics entered (50%) were awarded a 5 or 5\* mark, the government body responsible for awarding the funding has not enough money to honour its commitments - it is about £170 million short. Government has said it will not provide the extra money, leaving many universities questioning the value (and cost!) of the whole exercise [2]. The governments argument, however, is that the amount and quality of research performed in universities has increased considerably over the period in which the R.A.E. has existed. A government spokesman was able to say to Parliament, British research was amongst the most cost effective in the world, since it produced more papers (25) per million pounds (£) than almost any other country [3]. One result of this sort of approach is that academics now consider publishing interim results rather than wait until the end of a piece of work.

Teaching quality has been assessed through another exercise, the T.Q.A. - Teaching Quality Assurance. This was a very bureaucratic procedure for measuring the quality of teaching. It involved very, very large amounts of work for departments and each one was required to produce a mountain of paper, describing in detail how we taught, what we taught and all the procedures and paper trails that were in place to ensure that we did what we said we were doing. The assessors (a team of about 5) spent almost a week in the department checking the paperwork, interviewing students, both past and present, checking facilities and each member of staff (about 25) had a lecture observed. There were very serious misgivings about the value of the exercise and the university sector demanded reforms due to the time and cost involved. There is still no agreed way to proceed. Universities wish to do more themselves and have fewer outside assessments, whilst the body responsible for standards, the Quality Assurance Authority claims the universities are trying to avoid review.

As well as the R.A.E. and the T.Q.A., there are targets for other criteria, i.e. the numbers entering universities (50% of the 18-30 age group by 2010), initiatives on widening participation (increasing the numbers of students from socially disadvantaged areas), initiatives on increasing university/industry interaction and demands for policy documents and statements on a variety of issues. The author's department now has targets for undergraduate admissions (Home/EU and Overseas), postgraduate numbers (both taught Masters and research degrees), research applications (both numbers and financial value), papers published in international, prestigious journals, overhead income from grants and total grant income.

A real challenge is to realise the enormous potential of Universities within an economy and to reap the benefits, without shackling academics within a plethora of guidelines, targets and performance indicators. The independence of academics needs to be vigorously defended.

As universities take their place within a 'knowledge economy' there will be increased opportunities for working with business and industry. These co-operations can often be very fruitful and rewarding both financially and academically. Academic rigour and procedures are often very valuable when applied to practical problems; examining the problem; understanding the causes; studying and modelling processes; introducing and evaluating improvements. These can lead to profitable solutions for both the industry concerned and the university. Research in universities can lead to entirely new processes and inventions which can be commercialised to the benefit of

industry, universities and individuals. It is possible to enhance teaching through partnerships between industry and academic departments. The author's department has been running a scheme for 30 years called SHIPS (Sheffield Industrial Project Scheme). Groups of 5 or 6 second year undergraduates visit an industry, factory or commercial premises and are given a real, practical problem to solve. They gain experience in problem solving, brainstorming, group working, evaluating ideas and written and oral presentations of their findings [4,5] as they work to solve the problem.

Commercialising research can lead to conflicts of interest, however, particularly with respect to publishing. Traditionally, academics publish the results of their research for all to use. If there is a commercial element involved, there may be strong pressures not to publish - or indeed a contractual obligation not to. How will this affect an academic career? This may be of special importance to a young academic at the beginning of a career or if postgraduates are involved in a commercially sensitive research project.

If they cannot publish, how can they gain recognition for their work and eventually promotion? The challenge is to develop procedures whereby academics and universities benefit from the many opportunities that involvement with commerce and industry can generate, without detriment to departments or academic careers and without being turned into private research corporations.

## **2. Globalisation**

Globalisation is a term that has arisen in the last few years - mostly due to improving global communications and the advent of the WWW. The latter is a readily accessible source of information, communication and e-learning which offers the possibility of access to higher education to many people who cannot afford to travel to study full time at a foreign university.

There are opportunities for universities to co-operate. One institution may develop excellent web-based teaching material, which can be used by undergraduates from other universities. Mutual arrangements over course material could be very beneficial, institutions can also generate income from "setting" material and tuition via the WWW. There is also the possibility of generating very widely based, international communities of academics and students.

Some institutions, however, see these advances in technology not as an international, social force for co-operation and interaction, but very narrowly regard them as a means of making lots of money or saving costs. Noble [1] records some of the events in the U.S.A. in the 1990's where academics and administrations clashed over e-learning.

The e-University was established in the U.K., by the British Government, about two years ago, to 'cash in' on the opportunities of world wide e-learning [6,7]. It was announced with fanfares by the Minister of Education, but does not have a single student yet. The organisation is still being discussed and private companies are being involved, but it will be a while yet before it is established. (This venture is entirely separate from the excellent and well-established 'Open University', which is already involved in distance e-learning very successfully).

The author believes the commercialised attitude to global learning is the wrong way to approach the opportunities that exist. Starting out with an organisation and its profits at the centre of an enterprise forgets one very important factor - the student! A student who wishes to 'log on' to a course will do so for a very definite reason - usually he or she wishes to obtain both an education and a qualification that will help them in their career. The latter is very important indeed, since to be useful to a student, it must be recognised. The author believes that a successful, e-learning, on line course must have the student at the centre of its structure [8]. The pedagogy and the progression and assessment of student learning must be the starting point. If profits can be made from a well-designed, well-structured and well-delivered course, that is good, but courses designed solely to maximise profits, will not realise the potential of global learning. Good student learning requires support and the cost of tutorial support is high

e.g. for good e-learning tutorial classes of about 20 per tutor (not hundreds) are reasonable [9]. Removing the support to lower costs removes the quality of the education, and people will not pay for a low quality course.

In spite of all the excitement of a few years ago and the predictions of the end of the traditional university - all being swept away by the advent of the WWW - there are very few on-line universities in existence. One of those running is the Western Governors University in the U.S.A. and that requires students to attend a standard examination in a central examination hall if they want a qualification at the end. There is no on-line examination! [10] The Massachusetts Institute of Technology, in the U.S.A., has taken a very different approach, however, and is spending many millions of dollars over the next ten years to put many of its courses on-line and it has announced the material will be free. [11]

To some extent, the sudden rise in enthusiasm for e-learning is following the same path as the dot.com companies - sudden boom, then bust for many. The core values remain and there is no doubt there will be an increasing, global market for high quality, higher education on-line.

The potential for global learning and its impact on worldwide social and economic development is enormous. There are many countries, which would benefit from high quality, pedagogically sound teaching programmes, delivered to their people via electronic means. Universities all over the world can contribute to this, but the benefits will be realised more quickly if there is a spirit of co-operation rather than competition.

The challenges for universities are how to respond to these opportunities and how to develop methods of operation and co-operation that will maximise the benefits of a global community of academics and students. This will mean finding ways of working together for mutual benefit so individual institutions and academics gain as well as working within the wider context of a global market for knowledge and learning.

### **3. Harmonisation**

As international interaction develops and there is more international co-operation, then practical issues will face academics as well as economic and political ones.

The Bologna agreement, for example, is a move to harmonise the structure of degree courses with Europe [12]. First signed by the Education Ministers of 29 countries in 1999 (now 32 countries are involved) the document recognises the importance of education and educational co-operation in establishing a 'Europe of Knowledge'. The signatories agreed to work towards a common, convergent system of Higher Education by the year 2010. Whilst specifically recognising the diversity of educational culture throughout Europe it seeks to create a common European 'space' within which the variety of cultures, languages and educational systems can flourish. It does not intend to create a uniform or standard higher education system.

The objectives include the adoption of a system of comparable degrees at undergraduate and graduate levels: the establishment of a system of credits that will enable student mobility and lifelong learning: promotion of European co-operation in quality assurance and the promotion of a 'European dimension' throughout Higher Education. The declaration also intends that the European higher education system acquires a worldwide degree of attractiveness, not least because the signatories believe "the vitality and efficiency of any civilisation can be measured by the appeal its culture has for other countries". A follow up meeting in Prague in 2001 reviewed progress and the next meeting of the signatories is in Berlin in 2003.

The signatories "expect Universities to respond promptly and positively and to contribute actively to the success of our endeavour" [12] and call for "higher education institutions and students to be involved in shaping a compatible and efficient, yet diversified and adaptable European Higher Education Area."

The Ministers wish to create a harmonised - but not identical - education system within Europe to improve mobility, employment opportunities and interaction for students and also to provide an attractive, higher education for students from all over the world. High standards and quality assurance must be a basic underlying condition to

achieve their goals.

It has now been agreed to move towards a 3-5-8 structure. A first degree will take three years and a Masters qualification will take a further two. The degree of Ph.D. would be awarded after a further three years studying. Countries who are signatories to the agreement are bound to move in that direction - but what of countries who are non-signatories? Should they conform to standards? Is it a structure that is appropriate for everywhere? How should the Higher Education Institutions in countries that are signatories respond? To make major changes to course structures throughout universities takes very considerable effort and expense. Many engineering departments throughout Europe are running or planning taught Masters courses of a one-year duration. These are very popular with overseas students and demand is likely to grow strongly over the next one or two decades. With harmonisation and a 3-5-8 structure, will these courses need to be two years if an institution wishes to award a Masters qualification? These courses are often 'stand alone' in the sense they do not follow on directly from undergraduate degree coursework. This is because the students come from a wide variety of geographical and academic backgrounds - especially for courses such as Computer Science, Information Studies, Data Communications and Management and Business Studies. An institution insisting on a two-year course for a Masters qualification may well prejudices its place in this market.

In the U.K. over the past few years, much hard work by both universities and professional bodies has gone into creating four-year Masters of Engineering courses. The first three years of study are for a B.Eng and a further year qualifies a student for a M.Eng. degree. The conditions for continuing to a fourth year are strict and students must demonstrate their ability and achieve good marks in their examinations. A M.Eng. degree entitles a graduate to apply for Chartered Engineer status when they have acquired enough experience and responsibility. Those who only do a three-year course need to complete further, approved studies as well as gain practical experience. These required extensive planning and much hard work and effort to implement and accredit. They are not yet fully established and engineering academics are not yet keen to start all over again to generate five-year Masters degree courses.

In addition the Government is reviewing the education of 14-19 year olds in the U.K. and may be altering the examination system to move away from the traditional, specialised 'A' level examinations to a broader based education, similar to the International Baccalaureate [13]. With changes proposed at both input and output levels engineering departments are waiting before making changes. The Institution of Electrical Engineers in the U.K. has no definite proposals at the present time, though it is 'aware' of the Bologna Agreement. It will be required, however, to accredit the courses when they are in progress.

## CONCLUSIONS

Commercialisation, globalisation and harmonisation are just three of the many issues facing universities and academics in the next decade and beyond. There will be many opportunities for national and international development, but also conflicts of interest will arise. Traditionally, universities have been holders of knowledge in a public sense - available to all. How far should they venture down the commercial path where knowledge is only a commodity to be bought and sold? Why should they give it away, however, for others to exploit, without control or compensation? Globalisation offers learning on a worldwide stage and harmonisation will bring academic communities together. How should academics respond to all these changes - taking advantage of the opportunities, whilst retaining their traditional independence of thought and action? The latter can cause bitter conflict with those who seek to manage universities from without and who wish to impose their own agenda, focusing on issues and directions they see as important - which are not necessarily the same ones academics value.

The challenge for universities in the next decades is to recognise and respond to the changes occurring to the societies of which they are a vital part, so the responses occur from within institutions and constitute real progress.

## REFERENCES

- [1]. Noble, D.F. October1997-November 1999. Digital Diploma Mills.  
[www.communication.ucsd.edu/dl/October](http://www.communication.ucsd.edu/dl/October)
- [2]. Goddard, A. 2001. Funding Boss to Sideline RAE Results. The Times Higher Education Supplement. October 5th, 1.
- [3]. Elliot Major, L 2000. Still Top of The Boffs. Guardian Higher Education. April 18\*. 9.
- [4]. Chambers, B. and R. Brown. 1984. "SHIPS": The Sheffield Industrial Project Scheme. IEE Proceedings 131, pt. A, pp 714-721.
- [5]. Diprose, M.F., et al. 1997. The Sheffield Industrial Project Scheme: Team Teaching for Engineering Students. Teaching in Higher Education 2(1), pp 59-68.
- [6]. Blunkett, D. 2000, Digital Dimensions. Guardian Higher Education. February 15th, 1H.
- [7]. Goddard, A. 2000. Rapid Profits Plan for e-Uni. Times Higher Education Supplement, October 13th, 3.
- [8]. Diprose, M. F. 2001. A Model for Implementing Global e-Learning: The Student Controlled Summation of Separate Learning Experiences to Pass a Registered Examination. 12th International Conference of The EAEE1E: Innovation in Education for Electrical and Information Engineering. 14-15\* May, Nancy, France. 477-480.
- [9]. Teaching at an Internet Distance: The Pedagogy of On-Line Teaching and Learning. The Report of a 1998/1999 University of Illinois Faculty Seminar. 1999. December 7th.  
[www.vpaa.uillinois.edu/tid/report/](http://www.vpaa.uillinois.edu/tid/report/)
- [10]. Western Governors University, [www.wau.edu/wgu/academics/lt\\_listina.html](http://www.wau.edu/wgu/academics/lt_listina.html)
- [11]. Marcus, J. 2001. Free Online Material Causes Rethink in US. Times Higher Education Supplement, April 13th, 13.
- [12]. EU Website. [www.europa.eu.int/comm/education/bolonga\\_en.html](http://www.europa.eu.int/comm/education/bolonga_en.html)
- [13]. Henry, J. 2002. Bac Plan is 'Step in the Right Direction'. The Times Educational Supplement, January 11th, 3.

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