Education: Time to rethink the Industrial model?

Graham H. May
Independent Futurist
UK

This paper is based on a presentation to the "Re-inventing the University" Conference at Dublin City University (DCU) in June 2010. The conference was part of a foresight exercise undertaken by the University details of which can be found at http://www.dcu.ie/themes/foresight/index.shtml

"If your plan is for 1 year, Plant Rice;
If your plan is for 10 years, Plant Trees
If your plan is for 100 years, Educate Children"
Confucius 550-479 BC

Ever since Confucius the link between education and the future has been tacitly accepted but, with few exceptions, it has not been acknowledged in the curriculum. Education has always been concerned with the future in providing the young with knowledge and skills for use during their adult lives, but the future has seldom featured, as such, in the content of programmes. This essay contends that in the 21st century it is necessary to extend education beyond the young into the rest of life and that more than ever before it is important that the future be part of the curriculum.

In the medieval era in Europe, when the University as an institution emerged, any concern that education in the Christian world had with the future was focussed on the future in the after-life, where reward or punishment for this life would be reaped. The influence of the medieval period on the University can still be seen today in the pattern of study, and, in particular, in the long summer vacation designed to allow students to help with the harvest. In the Industrial Revolution the focus shifted from the after-life to the future in this life as education became concerned with the provision of a literate and numerate labour-force for the factories. As reformers were campaigning to remove children from work in the factories and mines others were setting up schools where they were taught the 3 Rs (Reading, wRiting and aRithmetic) to prepare them for work during their future adult life. Similar campaigns are now in progress in many developing countries where child labour is common.

Underlying the Industrial Society is a life-cycle model or myth, of preparation, through education of the young, for work during the middle years with, for the lucky few who survive, rest in old age. With few exceptions that model still dominates today. For example, a report sponsored by the UK National Institute of Adult Continuing Education found that 86% of the estimated £55 billion

invested annually in adult learning went to the 18-25 age group, and this in addition to the much greater expenditure on the under 18s (Schuller & Watson, 2011). This model worked reasonably well when the skills acquired in youth were applicable throughout working life and relatively few survived to claim the reward of a pension in retirement. It is now recognised that it is under strain at both ends, but there are also growing, if less recognised, strains in the middle as well.

The length of initial education in developed economies has gradually been extended from early to late-teenage, as the school leaving age has been raised, or even to the mid twenties, as the proportion of the age cohort attending University has grown. At the same time as this extension of dependence has been taking place other developments appear to work in the opposite direction. Physically young people in developed societies are reported to be experiencing puberty at a younger age, though the causes are debated (Roberts, 2005). There has also been a growing concern that children have been exposed to commercial and other pressures that are by making them "grow-up" too soon, denying them a proper childhood. Evidence of the strain these opposing influences have created is indicated by the varying problems that young people in almost all societies experience (Stephens, 2010).

The continuing arguments about the effectiveness of different approaches to education and, of particular relevance to this paper, the debate over the funding of Universities indicates the wider concern. In the United Kingdom the abandonment in 2010 of the previous government's target of 50 % of 18 year olds entering higher education provides a particular example of concern at the costs of publicly funded tertiary education. The subsequent move to a loan based funding model is intended in the long term to shift the cost to graduates and reduce the publicly funded element, but even before the new system has been introduced many of the assumptions on which it is based are being challenged.

At the other end of this model statutory retirement and pensions at, in most developed countries, between 60 and 65 were introduced during the twentieth century when average life expectancy was frequently below this age. Until recently there has been no change in the retirement age despite increasing longevity that has resulted in increasing numbers of pensioners. In consequence both state and private funding of pensions has become increasingly costly and potentially unsustainable leading governments to either increase the retirement age or, as in the UK, abandon the default retirement age altogether. In the private sector several companies have large pension liabilities that have lead them to abandon final salary schemes for their employees.

More importantly for the educational establishment it is arguable that the skills and knowledge obtained in initial education no longer adequately prepare the young for the whole of their lives because changes in work and life generally mean many are rapidly outdated and new skills and updated knowledge needed. Confucius lived in a society that changed little from generation to generation but we have moved from a world characterised by Charles Dicken's novel "Dombey and Son", where children followed their parents into the same career, to the "Generation Gap" of the twentieth century, where children entered very different areas of work, to the sequential career of the twenty-first, in which individuals move from job to job learning new skills as they go. Despite talk of lifelong learning and the introduction of continuous profes-

sional development in many careers we still have an education system that is based on the Industrial Age model, educating the young for a working life of 40, or even more, years when we know that in the 21st century much of what they are taught will be out-of-date within a few years, if it isn't already. It is interesting to speculate that one of the causes of the problems faced by young people, boredom, and of discipline problems in schools is that they know that, even if the education establishment and other decision makers have yet to realise it.

That introduction provides two issues on which to focus the rest of this paper:

- The outdated assumptions about the life-cycle that underlay the position of education in society and the need to move to a model based on lifelong learning, and
- The need to bring a Futures dimension into the curriculum as part of a move to make it more relevant to young people in the 21st century.

Developing Genuine Life-long Learning

The development of "genuine lifelong learning opportunities," was identified as an opportunity for DCU in its foresight exercise. The question then is, how to bring this about? A 2010 survey by the National Institute of Adult Continuing Education in the UK found that 47 % of the adult population planned to study. 60% of full-time workers planned to take up learning in the next three years, and a third of those aged 55-64 and a fifth of those 65-74 wanted to take up learning (Tobin, 2010). These results suggest that a significant number of individuals have recognised the need to continue learning as adults. Unfortunately the recession and cuts in government expenditure and employer support have reversed these trends and involvement in adult learning has fallen, particularly among the lowest socio-economic groups (Nash, 2011).

But adult learning is not just related to employment, for example:

- U3A the University of the Third Age, a self-help organisation for those no longer in employment, is also booming as older people continue to want to learn, and
- Learning for the Fourth Age, an organisation devoted to learning for the residents of care homes has shown that learning has benefits not only for the individuals themselves, but also for care staff, family and friends of residents and organisations. There are even economic benefits such as reduced need for medication and incontinency pads! (Fazaeli, 2011)

People appear to see the need for life-long learning even if the establishment has yet to take it seriously. The old vertical model of education/preparation, work, leisure, no longer fits, we need to turn it through 90 degrees, so that, except at the very beginning and end of the life cycle education, work and leisure run parallel throughout life, probably with more intensive periods of each at appropriate times. Many Universities, including DCU in its Foresight Exercise, which suggested that in the future 80% of students will be post-graduate and that their average age will be 40, have recognised the need for change, but despite the development of alternatives, in higher education the emphasis on the 18 year old undergraduate remains dominant.

Shifting the emphasis of education and Universities in particular away from late teenage to later years would raise many questions and no doubt many objections, but such a move would be aimed at creating an educational system that more closely met the needs of both individuals and society in the twenty-first century. Confucius remains relevant in emphasising the importance of educating children in planning for the long term, but the length of that initial period of education is the critical question. Most societies where compulsory schooling exists seem to have extended this period since they introduced the system in the belief that as society has become more complex more knowledge has to be stuffed into young brains. When, as argued above, this lasted through life, if it ever did, this approach was fairly effective, but it is increasingly doubtful that because of the rapid development of knowledge it now is.

The difficulties of prediction are well known, and often used as an argument against Futures, both in education and life generally. Why, therefore, is it assumed that the education system can predict the knowledge and skills that the young will need for the rest of their lives? It may once have been possible, but it certainly is not in the 21st century.

Rather than a blanket school-leaving age for all it seems likely that a flexible approach would benefit most. For some the traditional progression to tertiary education remains relevant but for others staying in school beyond the middle teens is probably a waste of time as well as disruptive to the continuing education of others as well. It may appear revolutionary but lowering or even removing the statutory school leaving age may be a better policy particularly if it is accompanied by the possibility to return to education later in life.

Raising the school leaving age and increasing the proportion of the age cohort in tertiary education has also been used as a way of keeping young people from the labour market and therefore reducing unemployment. Early retirement at the other end of the life cycle has also been introduced for the same reason. Reducing the school leaving age and increasing the retirement age, or introducing flexibility in both cases, would in consequence have significant implications across many other areas. Add into the mix the idea that opportunities for both education and leisure should be introduced into the middle years of life and there are major implications for the current patterns of work, employment, family life, personal finance and welfare. Any changes would need to consider these wider implications but are they any more revolutionary than the shift from subsistence agriculture to industrial society which in most cases took place without any thought about the consequences until after the event.

Universities, most notably through their research, clearly develop new knowledge and have traditionally acted as repositories of existing knowledge, but since the Industrial Revolution at least it has been apparent that any University monopoly of knowledge has, if it ever existed, disappeared. In the so called Knowledge Economy/ Society Universities are only one among many sources of knowledge and learning takes place in many locations outside the formal education system. The creation of company universities and the criticisms by potential employers of the quality of graduates and school leavers challenges schools and universities to improve their offerings, but why should these be almost totally focussed on life before employment?

Among the advantages that Universities can offer is the provision of opportunities for individuals to reflect on learning which has taken place elsewhere and to experiment away from the restrictions of the system within which that learning has taken place. They also have a major role in accreditation of learning through the awarding of degrees and other qualifications.

Universities could have a major role in meeting the educational needs of this new model by providing:

- short intensive courses which can be built up over time into qualifications,
- part-time intermittent routes to qualifications,
- work-based learning based on partnerships with employers,
- work based "doctorates" acquired through reflection on a long period of experience,
- negotiated learning contracts,
- independent programmes of study
- updates for alumni,
- but also leisure based programmes in areas such as art history, philosophy and Futures!

Many of these exist in the programmes of Universities today but examination of their prospectuses soon reveals that they are usually at the margin of current provision and where full-time undergraduate provision is whole or part state funded, attracts little or no such support. All of course will be made much easier by new technology that enables students to be more easily involved at a distance and at times that fit in with the rest of their lives but if they are to move into the main stream require major changes in the ways that Universities operate.

The Future in the Curriculum

Futurists have long argued the case for greater acknowledgement of the future in the curriculum at all levels of education and at a number of occasions in the last half century at least there seemed to be hope that a breakthrough might occur. A few examples of Futures programmes have endured but many have come and gone with the individual enthusiasts that developed them. At the time of writing there are again some new initiatives including a Masters degree at the Free University in Berlin and growing interest in business as indicated by the developments on Shapingtomorrow.com. Is it too much to hope that recognition may come at last?

The empirical tradition on which academic understanding is based contends that, we can only have knowledge of the past. How then did those attending the conference know to be in Dublin? If it was true in life generally that we can have no knowledge of the future, none of them would have been there, because they could not have known in advance that the event would happen. So as de Jouvenel (1967) noted, perhaps over-emphasising a little, in arranging a conference, as in many other situations, "the only useful knowledge we have relates to the future." Examining this paradox would make an interesting Phd. The past, history, is a very valuable source of understanding but as David Potter, the inventor of the Psion organiser, argued, "While you have to learn from history you must not copy history because the future will not be the

same." This leads to the contention, familiar to futurists, that in a rapidly changing world we need to bring knowledge of the future into education alongside the already acknowledged role of history. This is far from an original idea, H G Wells, argued as long ago as 1932 that in the light of the changes then occurring, "we ought to have... whole Faculties and Departments of Foresight doing all they can to anticipate and prepare for the consequences." Wells showed quite clearly that in the industrial and post-industrial world the future is not just something we might attempt to forecast but something that by our actions we are creating (Wells, 1932). The Italian industrialist Aurelio Pecci (1981) also recognised this arguing that, "the future will no longer be a mere continuation of the present but a direct consequence of it." James Duderstadt (2000) saw that this implies, "the nature of knowledge creation is shifting somewhat away from the *analysis of what has been to the creation of what has never been*." The value of Foresight in exploring the kind of futures that we might be creating has been recognised in both government and business in the last twenty years but with few exceptions the academic world has been slow to respond. There are examples of research such as that into climate change that looks to the end of this century and the Scenario Programme at the Said Business School in Oxford University but very few courses, in academia, devoted to the development of the skills required by government and business to undertake foresight work. It has long been accepted that although history has a role in most disciplines there is also a need for historians as such to develop the skills necessary to help us understand the past. On the other hand despite pleas such as Wells' the need to develop skills to deal with the future has not been seen as necessary. This is unfortunate because Futures work is not something to be undertaken lightly there being so many traps awaiting the unwary. Universities, in particular, have a role in developing skills in the methods available for foresight, exploring the issues that concern us about the future, and in understanding our relationship with the future and how our actions in the present affect the future. If we are to prepare for the world into which we are moving we need to bring the study of the future into the curriculum even though this raises many questions for the empirical tradition. The DCU Foresight exercise identified Futures and Foresight as an opportunity and it is to be hoped that this implies its inclusion in the curriculum as well as the administration.

We know the future is uncertain and if it is contingent on the decisions we make, then alternative futures are possible. This may appear to make Futures different but it is only necessary to view the past from a different perspective to suggest that histories might offer a better understanding. This paper was originally given by an Englishman in Dublin the capital of Ireland. Like many other countries that were at one time part of the British Empire that period of history is regarded differently on the opposite sides of the Irish Sea.

Closing Remarks

Having been a Futurist and an academic for over thirty years I am aware of many of the questions and objections that will be raised to such ideas. These need careful consideration from many perspectives beyond my sphere but from my experience I have come to the conclusion that one of the important roles of the Futurist is to raise

questions and encourage thinking about the future; if I have done that in relation to the model underlying the structure of education then my purpose has been achieved.

Correspondence

Graham H. May
28 Margerison Road, Ilkley, LS29 8QU, UK
Independent Futurist
E-mail: g.mayilkley@talktalk.net

Notes

1. This paper is based on experience in one country, the United Kingdom. The author would welcome information on whether the views expressed have wider relevance.

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