The role of education in addressing the challenges of the twenty-first century

Louise Richardson

In thinking about my talk today I realized immediately that my title was way too ambitious. There are a great many challenges of the twentieth century and most of them are likely to be revealed as the century progresses. My expertise, moreover, is limited to university education and that will be my focus today. A more accurate title therefore might have been: 'The role of universities in addressing some of the challenges evident at the beginning of the twenty-first century'. In speaking on this subject, I will be relying on the work of some of my Oxford colleagues, especially Diego Gambetta and Senia Paseta.

CHALLENGES 1916, 2016, 2116

What are these challenges? My list is by no means exhaustive but I would suggest: political violence, inequality, climate change, globalization and technological change, and I will focus on the first two. It is perhaps worth noting that each one of these challenges transcends national borders. From the vantage point of 1916, these challenges looked very different. The priority then was political violence, as Europe was subsumed in an orgy of mass slaughter as the powers fought for dominance. From the vantage point of 2116, I expect the priority will be climate change. I predict that our successors will look back on us today and wonder how we could have sat on our hands while evidence of the calamitous consequences of climate change mounted monthly.

In 1916 the political leaders in London were preoccupied by political violence, engaged as they were in the war to end all wars. Two years after the start of the war and months before the slaughter at the Somme, the allies had already lost several hundred thousand men. The savage costs of the war greatly exceeded all their expectations. They perceived the Easter Rising as a treacherous stab in the back of a nation fighting for its very survival against the German army. They had more pressing demands upon their attention than the social inequality rampant across Britain. The leaders of the Rising in Dublin were interested in establishing rather than transcending national

borders. They had a very different perspective on political violence. Perceiving Britain's difficulty as Ireland's opportunity, they saw their attempt at political violence as a noble means of securing Irish freedom, succeeding where six previous attempts had failed.

Some, followers of James Connolly were motivated by a desire to address social inequality in Dublin, but for most the commitment to equality was more abstract. The 1916 declaration of independence spoke of 'cherishing all the children of the nation equally' of 'equal rights and equal opportunities to all citizens' and of 'suffrages of all her men and women'. The priority, however, was physical force to achieve Irish freedom: 'the right of the people of Ireland to the ownership of Ireland, and to the unfettered control of Irish destinies, to be sovereign and indefeasible'. They sought equality for the Irish nation among the recognized governments of the world rather than social equality for the Irish population. Like most revolutionaries, they were vague on what precisely this freedom would entail.

I expect that the vast majority of the population of both Britain and Ireland were primarily concerned, then as now, with their own and their families' security and well-being.

While late-nineteenth-century advances in transportation and tele-communications had increased trade and cultural diffusion among, especially, Western nations, the term 'globalization' was unknown in 1916 and the phenomenon was certainly not considered a threat or even a challenge. Indeed, many in Britain, influenced by Norman Angell's *The grand illusion*, naively thought increased trade across Europe made a world war impossible.[1] In fact, Angell's argument was that economic interdependence made war futile, a more plausible claim.

In 2016 we are witnessing a popular revolt against globalization. Electorates across Europe and America, mobilized by populist – and often unscrupulous – politicians, are voting against the proponents of globalization, insisting that they are losing their jobs and their livelihoods as a result, either, because of outsourcing to countries with lower labour costs, or, to the importation of immigrants willing to accept lower wages. Support for Brexit in the United Kingdom and for Trump in the US are only two of the most visible exemplars of this trend. It is impossible to foresee the vantage point of 2116, but it is hard to imagine that the clock can be turned back on globalization. We can only hope that governments will make more concerted efforts to ensure that the benefits of globalization are more broadly distributed.

1 N. Angell, *The grand illusion* (New York, 1910).

Technological change is a constant. Warfare has long served as a catalyst for technological innovation. The 1914–18 war witnessed a transformation in weaponry with the introduction of tanks, machine guns, poison gas, submarines, flamethrowers and even air reconnaissance. The transport of troops by railway also transformed the conduct of war. The vast scale of the casualties – estimated at an unimaginable 38 million – was in part due to the introduction of these military innovations and delays in adapting defensive tactics. The pace of technological change has accelerated as the century has progressed and we can be confident that it will continue to do so into the future, to the point where it is hard to imagine how a gathering such as this conference might be conducted, and how we might all travel to it, in 2116.

Having briefly sketched the five challenges I will address, let me now turn to the question of education, and universities in particular. At a time when only a tiny percentage of the population was university-educated, three of the seven signatories on the 1916 declaration of independence were educators: Patrick Pearse, Joseph Mary Plunkett and Thomas MacDonagh. All three were teachers in the school founded by Pearse and MacDonagh, St Enda's. Two other teachers in the school, William Pearse and Con Colbert, were also among those executed in the wake of the Rising.

Pearse cared passionately about education and founded St Enda's in 1908. The school was bilingual, with an unashamedly Celtic and nationalist ethos, teaching valour and heroism refracted through a fascination with mythology. But Pearse was also influenced by the philosophy of Maria Montessori and sought to create a child centred environment focused on personal development, creativity, imagination and intellectual freedom. Drawing on the ancient Celtic tradition of fostering, he saw the role of teachers as fostering the personal development of each individual child. These were radical ideas at the time. In his 1915 polemic, *The murder machine*, he railed against the Irish teaching system which, he argued, perceived and practiced education as a 'manufacturing process'. He wrote:

> Our common parlance has become impressed with the conception of education as some sort of manufacturing process. Our children are the 'raw material'; we desiderate for their education 'modern methods' which must be efficient but cheap; we send them to Clongowes to be 'finished'; when finished they are 'turned out'; specialists 'grind' them for English civil service and the so-called liberal profession.[2]

2 P.H. Pearse, *The murder machine* (Dublin, 1916), p. 12.

Ever the visionary, he sought to replace this system with one inspired by ancient Celtic traditions, literature and heroic legends that would develop a generation of gallant Gaelic-speaking individuals to fight for the new Ireland. Few proponents of political violence have been as vocal on the subject of education as Pearse. Most are more focused on the evils of the adversary and the tactics required to prevail against them. It is nevertheless difficult to escape the comparison with latter-day conservative madrasas. The educational philosophy of St Enda's, with its focus on the individual development of the child, could hardly be more different from the harsh discipline and rote learning of some madrasas, producing graduates unschooled in any of the skills required for success in the modern world. Where St Enda's attracted the children of the Dublin middle and professional classes, some madrasas attract the children of families who can ill afford to feed much less educate them. Nevertheless, the idea of inculcating the next generation in the ideology of those wishing to overthrow the state and revert to an earlier mythical and halcyon past, is a shared feature.

POLITICAL VIOLENCE

What then of the relationship between education, or universities, and political violence? I think it fair to assume that political violence will remain a challenge for the twenty-first century. As an educator, and one who has spent my career trying to understand the motives of those who resort to terrorism, it is very tempting to see education, and universities in particular, as the antidote to terrorism. If only it were that simple. By terrorism here I mean, simply, the deliberate targeting of non-combatants for a political purpose by a sub-state group.

When I had time to study terrorists I discovered that one attribute they invariably shared was a highly over-simplified view of the world. They tend to see the world in Manichean terms, black and white, good and evil. It goes without saying that they see themselves as good and their opponents as evil. I find it difficult to identify this world view with an education that teaches you to think critically, to question arguments and assumptions, and to look always for the grey. I see the role of education as being, in part, to rob students of their certitudes, and certitude is a requirement of those willing to sacrifice their lives, and commit atrocities that violate every religious and ethical code known, in pursuit of a goal they are unlikely to achieve.

University education is, in many ways, antithetical to military training. Where universities train students to question, military training teaches

obedience. Where universities require consideration, the military requires action. Most importantly, where universities, and especially the humanities, endeavour to inculcate empathy; military action, whether by conventional armies, guerrilla insurgents or terrorists, requires the dehumanizing of the adversary as a prerequisite for killing them.

The British government in 2015 passed into law the Counter-Terrorism and Security Act, which introduced a new statutory duty for universities to have 'due regard to the need to prevent individuals from being drawn into terrorism'. This means that universities are now obliged to engage with what is called the 'Prevent' agenda. The two aspects of this legislation that are of most concern to universities are the obligation to report to the authorities those seen as vulnerable to radicalization, and the infringement of freedom of speech entailed in the prohibition on the expression of extremist – including non-violent – extremist speech.

The legislation arose from an understandable concern about the radicalization of young people. While not ostensibly focused on any particular group, there is no doubt in anyone's mind that the target, in fact, is Islamic extremism. Universities have two concerns. If Muslim students fear being reported to the authorities, they are less likely to avail themselves of the support facilities available at university. Moreover, they are more likely to feel suspect and unwelcome, and hence less likely to integrate, into university life. An even bigger concern is the threat to the freedom of expression that is the hallmark of any university worth the name. An amendment to the legislation attached in the house of lords allowed universities to have particular regard to their obligation to defend free speech, which provides some protection against the more draconian aspects of the original bill. Nevertheless, with annual reporting to Higher Education Funding Council for England (HEFCE) on the measures being taken to ensure that 'extremist speech' is not expressed at universities, there is necessarily a chilling effect on free speech.

My own view is that universities should welcome the expression of all legal speech on campus. It is precisely at universities where such speech can be openly challenged. As teachers I believe we have an obligation to model to our students how to respond to speech they find objectionable. We should do so in a spirit of what my colleague, Timothy Garton Ash, calls 'robust civility'. Extremist speech is vaguely defined in legislation as speech expressing vocal or active opposition to British values. I would think that British values are sufficiently robust to withstand such criticism and indeed that it is a core British value to respect the right to criticize the powers that be.

It is true, of course, that some terrorists have been radicalized while at university, though given the demographic of the university population it would be astonishing if they were not. The Centre for Social Cohesion claims that 30 per cent of individuals involved in Islamist-inspired terrorist attacks in the UK had attended British universities or third-level colleges. The iron law of social science, of course, is that correlation does not imply causation. It does not follow that they were radicalized at university. We have no way of knowing how many young people went to university with radical views that were changed by their education.

Cases that are cited are King's College London graduates Asif Hanif and Omar Khan Sharif, who carried out a suicide bomb attack in Tel Aviv in 2003, and Abdullah Ahmad Ali, who participated in the plot to carry out a liquid bomb attack on trans-Atlantic flights in 2007. He had attended London City University. Another example was Kafeel Ahmad, a member of the Islamic Society at Queen's University, Belfast, who died trying to detonate an explosive outside Glasgow airport. I've seen no evidence to suggest that they were radicalized at university. By and large, young men carry out terrorist attacks. There are lots of young men at university. Prisons, which also hold large numbers of young men, are infinitely more effective breeding grounds for terrorists.

Two cases in which terrorists claimed to have been radicalized at university are Umar Farouk Abdulmutallab, variously known as the Underpants Bomber or the Christmas Bomber, who is said to have been radicalized at University College London, where he was president of the Islamic Society. His parents were belatedly aware of his radicalization and went to considerable lengths to arrest it. He studied in Yemen both before and after his time in UCL, so it is reasonable to assume some of the radicalization may have taken place there. He was sentenced to life in prison for trying to blow up a Detroit-bound plane on Christmas Day 2009.

Another well-known case is that of Omar Sheikh who was convicted of the brutal murder of Daniel Pearl. He wrote in his confession that while a student at the London School of Economics in 1992, 'Bosnia Week' was observed and a number of documentary films were shown. He wrote that one film in particular, *The death of a nation*, which depicted Bosnian Muslims being murdered by Serbs, 'shook my heart' and launched his political awakening and subsequent radicalization. He helped to organize a student conference on Bosnia and then began fundraising for a convoy of materials for Bosnia. Soon he was making contact with Islamic militants. It is hard for me to see how the LSE can be held accountable for his radicalization. We don't know how many others students participated in the same activities,

watched the same films, even contributed to relief materials, without being radicalized.

While I would insist that universities cannot be blamed for the radicalization of their students, it is the case that many terrorists are, in fact, highly educated. In terrorist organizations, as in most others, the leaders tend to be different from the followers. They often, for example, come from higher educational and socio-economic backgrounds. The leader not only arranges training but provides an ideology, identifies the enemy, articulates a strategy. In some cases the leader becomes the personification of the group or ideology. Some leaders have almost god-like status among their followers, such as Osama Bin Laden of Al-Qaeda, Vellupillai Prabakharan of the Sri Lankan Tamil Tigers, and Shoko Asahara of the Japanese group Aum Shinrikyo (known among other things for the unusually high educational attainment of its members). Some organizations create a cult of personality around their leaders, such as Abimael Guzman of the Peruvian Shining Path and Abdullah Öcalan of the Turkish PKK.

Leaders of terrorist movements tend to be older and more highly educated than their followers no matter what part of the world they come from. In Latin America, while the long-time leader of the FARC, Manuel Marulanda Velez, was not thought to have been highly educated, Brazil's Carol Marighella was a civil-engineering dropout. Raul Sendic, leader of the Uruguayan Tupamaros, was a lawyer. Mario Roberto Santucho, leader of the Argentine ERP, was an economist and Guzman a professor of anthropology. In Europe most of the leaders of the Italian Red Brigades were university professors. Many of the members of the Baader-Meinhof Gang in Germany were university dropouts. Abdullah Öcalan of the PKK studied law and political science.

Islamist groups appear to recruit successfully from all sections of society. Famously, Osama Bin Laden was a multimillionaire and studied economics. His second in command, Ayman al-Zawahiri, is a doctor, as was George Habash, the leader of the Popular Front for the Liberation of Palestine, and Abdul Aziz Rantisi, one of the founders of Hamas. Mohammad Atta, the leader of the 9/11 team, earned a PhD in urban planning. Sheikh Ahmed Yassin, the spiritual leader of Hamas, trained as a teacher, and Yasser Arafat as an engineer.

Marc Sageman studied the biographies of 171 members of Al-Qaeda and found that two-thirds were middle or upper class and that 60 per cent had attended university, while several had doctorates.[3] Similarly, Gilles Keppel

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3 M. Sageman, *Understanding terror networks* (Philadelphia, 2004).

studied 300 Islamic militants in Egypt and found that they too were more highly educated and of higher social-economic status than most terrorists.[4] Peter Bergen and Swati Pandey's examination of the backgrounds of seventy-five terrorists responsible for some of the most damaging attacks found that 53 per cent had attended college or had doctorates from Western universities, while two others were working on PhDs.[5] While every terrorist group needs foot soldiers as cannon fodder, Islamist groups have successfully recruited a cadre of highly educated followers. Men such as Omar Sheikh and Mohamad Atta are required for the kind of international operations that necessitate international travel and operating in different societies. Moreover, increased reliance on the internet for secure transnational communication requires operatives with some technological facility.

Universities then do not cause radicalization but nor has university education prevented individuals from becoming terrorists. Recent empirical work by Diego Gambetta and Steffen Hertog has shed a fascinating new light on the more nuanced relationship between university education, and in particular, courses of study and terrorism.[6] Ever since Ted Gurr's seminal book *Why men rebel* was published in 1970, we have known about the power of relative deprivation.[7] This is the view that it is not one's objective condition but rather one's relative condition that incites rebellion. The Peruvian Shining Path would be a case in point. The government introduced universities in the remote regions like Ayacuchu to bring higher education to the indigenous population. They received the education and emerged with heightened expectations into an economy that could not employ them. They were easily radicalized by Abimael Guzman, offering both a Maoist explanation for their predicament and a means to redress it.

Gambetta and Hertog have focused on contemporary Islamic extremists, and while their findings need to be treated with caution, as the numbers are low and accurate information hard to attain, they provide empirical support for claims we have long felt intuitively, namely that particular types of terrorist groups tend to recruit people with particular educational backgrounds.[8] They too find some support for the motivating power of a sense of relative deprivation, which they find consistent with the growth and decline of various professions – engineers, doctors, teachers and lawyers – in opposition movements in Islamic countries over the course of a century.

4 G. Keppel, *Muslim extremism in Egypt: the prophet and the pharaoh* (Berkeley, 1995).
5 P. Bergen and S. Pandey, 'The madrassa myth', *New York Times*, 14 June 2005.
6 D. Gambetta and S. Hertog, *Engineers of jihad* (Princeton, 2016).   **7** T.R. Gurr, *Why men rebel* (Princeton, 1970).   **8** The next several paragraphs rely heavily on the work of Gambetta and Hertog, cited in n. 6.

They found very few graduates of extremist groups in countries with good labour-market opportunities. Medicine and engineering are the two subjects with the highest status and highest entry requirements across the Islamic world. They found that engineers were prominent in Islamic radicalism in the 1970s in countries undergoing economic crises, but not earlier. They also found that there were very few engineers in Islamist movements in Saudi Arabia, where there were very good labour-market opportunities.

They found that the core of the Islamist movement emerged from would-be elites not the poor and dispossessed. They demonstrate that university graduates are over-represented among Islamic radicals, and that the higher the level of education the greater the likelihood of joining a violent group, and that those with the most demanding degrees – like engineering and medicine – have a greater likelihood of joining. They found that across groups and countries, relative to the male population, the number of engineers in extremist groups is fourteen times what you would expect, and four times what you would expect relative to university graduates.

Gambetta and Hertog find that engineers radicalize in the Islamic world partly as a result of acute relative deprivation but that they radicalize disproportionally even in the absence of frustrated aspirations, as shown by their presence among Islamists based in South Asia and the West. In short, engineers prefer to join violent rather than peaceful Islamist opposition groups. Engineers prefer to join religious rather than secular and nationalist groups. Doctors are better represented than engineers among non-violent Islamists; when given the choice, doctors opt for secular groups. Engineers who do join radical groups do so with special intensity and devotion with a particular bias for religious extremism. They are more committed and less likely to defect. In fact, the odds of an engineer defecting are 40 per cent of what one would expect given their numbers.

There are lots of similarities between Islamist groups and violent right-wing groups, and they are very different from left-wing groups. Radical right-wing movements aim for ethnic and cultural purification, Islamists aim for religious purification, and both aim for purity of social mores and share social conservatism. They tend to share a nostalgia for a lost past, a focus on tradition, and an obsession with order, hierarchy and strong identity boundaries. Left-wing groups are very different, and while engineers are frequently found among right-wing extremist movements in the developed world, they rarely join left-wing groups.

One argument would be that recruiters want engineers because of their practical skills, but this is not consistent with the evidence. Groups in which members are selected by recruiters have fewer engineers that groups where

they are self-selected, and besides, left-wing groups also need practical engineering skills but rarely get them.

In stark contrast, humanities and social science graduates are strongly represented in left-wing groups but almost entirely absent from right-wing and Islamist ones. Moreover, the odds of a humanities graduate defecting from the group are fourteen times greater than you would expect from their numbers. Relative to engineers the odds of a humanities student defecting is forty times greater. Doctors, on the other hand, defect in proportion to their presence in the group. It is also perhaps worth pointing out that women are relatively rare in Islamist and right-wing groups but quite evident in left-wing groups.

What then is the role of universities in addressing the challenge of political violence in the twenty-first century? As I have attempted to demonstrate, a university degree is no antidote to political violence, but I believe that an education is. As engines of our economies, universities can help to undermine the emergence of the sense of relative deprivation that emerges from the frustrated ambitions of the highly educated into economies that cannot absorb them, deploy their skills or enable them to realize their ambitions. But if universities focus exclusively on training a skilled workforce, we lose the opportunity to provide an education that is so much broader and more important. An education that produces a generation accustomed to thinking critically, acting ethically and always questioning – whether it is the doctrines of the government of the day or the ideologies of those who wish to overthrow it – will ensure a generation that will question those proponents of violence. An education that teaches empathy with others, that exposes its students to a cosmopolitan community of scholars, that delights in difference rather than fears it, and that inculcates the belief that truth is an aspiration not a possession, will produce a generation that will reject any effort to impose orthodoxy.

INEQUALITY

As well as engines of the economy, universities have long served as drivers of social mobility. They will need to continue to do so, and to do so with more energy and creativity, if we are to redress societal inequality. The centrality of the issue of inequality in Western democracies was captured by the reception accorded Thomas Piketty's book, *Capital in the twenty-first century*.[9] He focused on wealth inequality in the US and Europe since the

9 T. Piketty, *Capital in the twenty-first century* (Cambridge, MA, 2014).

eighteenth century, and argued that the rate of return on capital is greater than economic growth over the long term, resulting in a concentration of wealth and social and economic instability. The book reached the number one slot on the *New York Times* best-seller list for hardcover non-fiction and became the greatest ever sales success for Harvard University Press. Clearly he was onto something, the same something, indeed, as the Occupy movement.

The question of inequality is too broad for consideration here and the gravest inequality, of course, is between rich and poor countries. My focus in on equality of access to education in countries like ours. By comparison, across Africa only 6 per cent of the population are university-educated and even there the variation among countries is significant.

Compared to the universities of 1916, today's universities are bigger, their students come from more diverse socio-economic backgrounds and are, of course, markedly more female. The transformation of the role of women in Irish universities is captured by the fact that in 1898 women made up 0.8 per cent of medical students matriculating at Irish universities. In 2008 they were 75 per cent.[10]

Queen's College, Belfast was the most progressive of all Irish university colleges and was proud of its record on female education. Queen's admitted women to its honours classes in 1882 (and to medical classes from 1889). Queen's College, Cork admitted its first female medical students in 1890 and Queen's College, Galway in 1892.

When women were first admitted to study in Galway in 1888 the local Catholic bishop, F.J. McCormack, was furious and had a declaration forbidding women to attend the college read aloud in all Catholic churches in his dioceses. Ironically, University College, Dublin, the college that was seen as being at the centre of the drive for Irish educational equality, was the last institution to hold out against admitting women. It was not until the passage of the National University of Ireland bill in 1908 that women began to be integrated as full members of the college, and even then only after the preferred plan of the Catholic clergy – which was the establishment of separate women's colleges – had not been successful.

Curiously, Catholic women made up 9 per cent of the total number of women at Trinity between 1904 and 1924. This is the same as the percentage of Catholic men, and is a significant figure given the extent of clerical

10 I am indebted to Dr Senia Paseta, fellow and tutor in history, St Hugh's College, Oxford, and author of *Before the revolution: nationalism, social change and Ireland's Catholic elite, 1879–1922* (Oxford, 1999) and *Irish nationalist women, 1900–1918* (Cambridge, 2013) for the historical data in the following several paragraphs.

disapproval. They must have been pretty brave women, as Catholic opinion was firmly anti-Trinity and, at best, neutral on the issue of university education for women.

The pioneers of the women's education movement were mainly middle class, urban and Protestant. Catholic activists only emerged after the first cohort of Catholics had passed through university and could speak for themselves. Until 1879 the only recognized universities in Ireland were Trinity and the Queen's colleges, and neither was acceptable to the Catholic hierarchy, so there was little chance that the women's cause would be taken up.

A big change occurred in 1878 with the establishment of the intermediate education system and in the following year, the Royal University of Ireland. The first was a new system of secondary education open to all students, based exclusively on exam results, and the second just an examining body based on London University and designed for men to get degrees without having had to attend a Protestant institution like Trinity or a non-denominational one like the Queen's colleges. These initiatives took place without women in mind, though women were beneficiaries. This reinforces my view that all one has to do is create a true meritocracy and women will do fine. By 1884, nine women had graduated from the Royal University with a degree, by 1909 there were 70.

Only five women registered at Queen's College, Cork in the first two years after women were allowed admission, but by 1896 there were thirty. A real breakthrough occurred in 1896 when two women graduated in medicine, thereby shattering the widely held belief that a degree in arts was the pinnacle of women's achievement. While some professors did refuse to teach women, great advances were made. Alice Perry took a first in engineering in Galway in 1906, becoming the first qualified female engineer in the UK, and possibly the world. Remarkably, she was one of five sisters who all graduated from Queen's College, Galway. (Progress, however, was slow. I'm told that in the 1950s in Galway there was only one woman taking honours mathematics, and she was known, not by her given name, but as 'Honours maths'.) Being one of only a few women did have its compensations. Apparently they were in great demand in college dances. One man recollected that women were so scarce that the men were forced to 'ration our dances among the men, half a dance to one man, and half to another' at the college's annual social.

For centuries universities have deprived themselves of the contributions of half the population by their exclusion of women. Who knows what discoveries might have been made, diseases cured, poems and musical scores written, if women had had access to the same education as men? The same

applies today to those who, because of the conditions of their birth – whether they are born in an impoverished or war-torn country or into a deprived or dysfunctional family in a wealthy country – are denied the benefits of a good education, with the result that society in turn is denied their potential contributions.

We have to address the societal inequality that means that the children of middle-class parents have a far greater chance of attaining a university education than the children of immigrants or labourers. In the UK the wealthiest children are four times more likely to go to university than those coming from the poorest families, and seven times more likely to go to a top university than the poorest children. The gap even appears to be widening, notwithstanding considerable effort and expense. In the US a child born into a family with an income in the highest quartile has an 85 per cent chance of earning a university degree. A child born into a family with an income in the lowest quartile has an 8 per cent chance. In Dublin, four out of five young people from well-off areas go to university, but in the most disadvantaged areas it is just one out of 7.5. According to the Organisation for Economic Co-operation and Development, in Ireland 20 per cent of people whose parents did not finish secondary school attain a third-level education, compared to 69 per cent of those whose parents have a third-level education. These figures are broadly comparable to England's 22 per cent and 73 per cent, respectively, and less stark than the US's 13 per cent and 61 per cent.[11] While I see this as morally indefensible, it is also practically damaging, as we are denying ourselves access to the talents of so many people.

These are not easy problems to solve. The key to access to a good university education is good early education. Indeed, increasing evidence is becoming available that attendance at preschool significantly improves one's chances of doing well at school later. A recent Oxford study found that children of all social backgrounds in the UK who attended pre-school were twice as likely to attend the sixth form as those who didn't. This is consistent with American studies on the success of the Head Start preschool program.

One of the great tragedies of our wealthy societies is just how many young people (in the UK this cohort is increasingly white working-class males) are falling off the academic ladder very early on. Universities like mine are constantly being criticized for not accepting more poor students, and there is always more we can do, but the real problem is how few younger people from deprived backgrounds have the academic skills to be competitive for entry into the most selective universities.

11 OECD, *Education at a glance* (2016).

Ireland does better than most countries in the proportion of its population achieving third-level education. According to Eurostat, Ireland has the most higher-education graduates per head of population of all twenty-eight countries of the European Union. The economic benefits of a university education are easy to calculate; the intangible benefits are incalculable but even more profound. In the UK, according to the OECD, those with a bachelor's degree earn 49 per cent more than those with a secondary education. In the US the figure is 60 per cent more; in Ireland it is 63 per cent. For those with graduate degrees in the UK their income is 71 per cent higher than those with a secondary education, in the US the figure is 122 per cent more and in Ireland, 90 per cent more.[12] A report on job creation in the recovery from the financial crisis in the US demonstrated that 99 per cent of job growth went to workers with more than a secondary education. (I think that this statistic alone can explain the phenomenon of Donald Trump.) In other words, workers with bachelor's degrees or above have gained 8.4 million jobs, compared to workers with a high school diploma, who gained 80,000.[13]

I believe that the years between now and 2116 will demonstrate a direct correlation between the ability of universities to educate a broader section of society and the degree of social instability experienced by these societies. The last few months have amply demonstrated, most dramatically in the US but certainly in Britain too, the destabilizing power of an economically disenfranchised population.

OTHER CHALLENGES

Universities also have their part to play in addressing the other challenges I mentioned: climate change, globalization and technological change. They will do so by doing what universities do best: dispassionately and creatively conducting research into critical scientific and societal problems and educating the next generation of students in our methods and conclusions. But we must do more. We must become better in promulgating the results of our research and we must win the respect of our societies for the integrity of our findings. That an unscrupulous politician's claim that 'we have had enough of experts' should find resonance is evidence that we have failed to make our case. If our societies are to make the necessary behavioural changes to accommodate climate change, they must be convinced of the reliability of

12 OECD, *Education at a glance* (2016).   13 A. Carnevale, T. Jayasundera & A. Gulish, *American's divided recovery* (Georgetown, DC, 2016).

our findings. If we want populations to dismantle rather than erect national borders we must present incontrovertible evidence of the benefits of globalization. If we want to master new technologies we must educate not only those with the ability to make scientific discoveries and technological innovations, we must educate a generation with the moral sensitivity to think through the ethical implications of these discoveries and innovation for the rest of society.

This is a lot of responsibility to accord universities, but it was John Stuart Mill, a nineteenth-century advocate of reconciliation with Ireland, the advancement of women and freedom of speech, who said that the purpose of a university was 'the laying open to each succeeding generation … the accumulated treasures of the thoughts of mankind'.

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