

Changes, constants and challenges in the evolving university

by

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I'd like to start by congratulating Comenius University on its 100th anniversary, and to thank Karol and Daniela for hosting such a successful UNICA meeting.

In this presentation I want to address some things that have changed since the foundation of our universities, some things that remain the same, and some of the challenges we now face.

Changes

When University College Dublin was established as the Catholic University of Ireland in 1854 under the rectorship of John Henry Newman, the world was in the grip of the industrial revolution. Trains carried people and goods across continents. Ships powered by massive steam engines carried passengers and cargo around the world at a rate and quantity never seen before in human history. Practical automobiles and powered flight were just around the corner, and the major cities of the world were already connected by telegraph. The 19th century saw more universities founded than any previous era in history, but participation in these universities was largely restricted to a privileged few.

Living as we are in an age of change which some are referring to as the 'Fourth Industrial Revolution', I would like to take this opportunity to consider with you some of the things that have changed since Newman's time. While many changes and social transformations have occurred over the past 164 years, I would like to discuss three in particular which have changed the face of both society and universities.

1) The globalisation, interconnection and digitisation of our society

Firstly, civilizations have now blended to the extent that there is now a single global human civilization. Technological advances in communication and transportation have enabled this change. I have had the opportunity to visit so-called slums in India, Africa and Columbia. Although these areas house some of the poorest people in the world, I found them to be vibrant communities, run by a self-organised form of local government, and fully connected to the wider world through mobile phone technology.

Even many of the children had mobile phones. People living in these areas value of education, and schools of many different forms thrive. In those same areas, my own mobile phone seamlessly connected with the network, underlining the extraordinary fact that for the first

time in history the ability to contact virtually any other human being alive at the touch of a few buttons. Global communications and transport technologies and protocols allow the transmission of information and goods around the world at hitherto unthinkable speeds.

Entrepreneurs have been quick to utilise the possibilities of these technologies and infrastructures, and we have all benefited as a result, enjoying a greater choice and cheaper supply of every imaginable food type and commodity than ever before. At the same time our world of work has been transformed from predominantly repetitive and menial labour to one in which much of our time is involved in interacting with people and machines, with machines doing much of the hard physical and mental labour.

2) The massive increase in participation in Higher Education

As a result of this general increase in prosperity, the proportion of the population pursuing university studies has increased dramatically. Productivity increases generated by mechanisation and digital technology have permitted more families to send young people to university, and at the same time have increased the proportion of jobs requiring high level intellectual knowledge and skills. This is the second major change.

3) The increased recognition of the value of equality, diversity and inclusion

The third change I wish to mention is the increasing recognition of the value of equality, diversity and inclusion, and the participation of women and ethnic minorities in higher education dramatically increased, perhaps as a consequence of the first two changes. However, this is an incomplete change which has suffered political set-backs in recent times. In addition, the level of diversity in university programmes is still very much subject dependent.

For example, we still see nursing cohorts dominated by females and computer science by males. Nevertheless, we have come a long way from Newman's University, which exclusively educated young gentlemen. Interestingly, the subject preferences of males and females vary significantly between countries, indicating a cultural basis which extends well beyond the boundaries of the universities, and making diversity within student cohorts a difficult problem to address.

Constants

Despite these significant changes in society and in higher education, there are a number of academic traditions which have remained remarkably constant and relevant over the same time period.

1) The persistence of teaching and learning through a series of lectures and tutorials, and the certification of the journey of a student through a coherent program of study with certification of the level of achievement of the student

The first constant is the persistence of teaching and learning through a series of lectures and tutorials, and certification of the journey of a student through a coherent program of study with certification of the level of achievement of the student in that programme. Although many study programmes are available online, demand for a conventional, campus-based university education continues to grow around the world. This is despite the rise over the last decade of Massive Online Open Courses (MOOCs) which allow students from anywhere to engage in education courses offered by some of the world's best universities for free.

The persistence of lectures and tutorials is perhaps related to the continued popularity of conferences and symposiums such as the one we are participating in today. Many of us have spent significant time and money travelling to be here today, yet the information we are exchanging could easily have been transmitted in electronic papers, and the formal accounts and budget adopted through electronic vote. Presentations could be shared and discussions could have happened through a so-called 'webinar' without us leaving our offices. There is a human experience dimension to being together and sharing experiences which technology cannot replace.

Consequently people still travel long distances and spend money to attend sporting, cultural and artistic events that they could have watched from the comfort of their own living room. Commentators predicting the demise of the traditional university could do well to reflect on these phenomena.

2) The open and critical scientific investigation and scholarship validated through peer review

The second constant I want to mention is open and critical scientific investigation and scholarship validated through peer review. We inherit a system of research publication in academic journals that dates back to 1665, when the Philosophical Transactions of the Royal Society were first published. Research results are described in articles or papers, and these articles are reviewed or refereed by other experts in the field, then published if they are considered to be accurate and of sufficient interest. This system has allowed knowledge of our world and our universe to be built incrementally, with each generation of researchers building on the findings of the previous generation.

While the fundamentals of this system have remained essentially the same for more than 350 years, globalisation and communication technologies have dramatically expanded and enhanced the amount of research being reported and the accessibility of that research. Notably the evolution of English as the lingua franca of research communication has connected together research efforts across the world, while technological innovations in search engines and digital libraries have dramatically increased the speed at which literature reviews can be conducted. These changes have reduced the chances of effort being wasted through duplication of work.

3) The debate around the value of Arts and Humanities *versus* the useful sciences, and the right combination of breadth and depth of education

The final constant I wish to mention here is the debate around the merits of teachings arts and humanities in contrast to the 'useful sciences', and the relative merit of teaching breadth over depth. This tension has been around since the rise of modern science started to threaten the status of a classical education as it emerged from the renaissance.

The controversy was certainly prominent at the time of John Henry Newman and the founding of UCD, and much of Newman's famous book, 'The Idea of a University' argues the case for breadth of education and the preparing of 'gentleman' for society who are able to converse knowledgeably and rationally across a range of subjects. The debate has continued through the intervening years, and is still in clear evidence today.

From my perspective, a comprehensive university of scale should be offering students opportunities for both depth and breadth of learning, recognising that university students are adults who will perform best in subjects in which they have an interest. Forcing a student to study a second language when they do not want to is not going to achieve anything useful, and forcing a medicine student to study a module in Philosophy in which they have no interest is not going to make their education broader. In each case the result is more likely to be a negative impact on the both the learning and teaching experience in those modules. However, giving an Engineering student an opportunity to study a second language or a humanities module in which they have an interest is going produce a broader graduate. Consequently, a university should offer degree programmes which allow the students to pursue depth or breadth (or anything in between) according to their personal interests and inclinations.

The same argument applies to disciplinary and interdisciplinary research. Forcing all academics to participate in interdisciplinary research is likely to be counterproductive. Interdisciplinary research should anyway be underpinned by strong disciplinary research. At the university and at the national and European level both disciplinary and interdisciplinary research should be encouraged and supported.

Challenges

I will now move on to talk about some of the challenges facing universities in the current environment.

1) The potential disconnection of students from the physical university through virtualisation of the learning experience

The first is increasing virtualisation of the learning journey. Although, as I have already discussed, there is a human experience element to participating in lectures and tutorials in person which people enjoy, students may face other pressures on their time, such as part-time or even full-time work, family responsibilities, long commuting times and so forth which may lead to them electing not to attend in person where an alternative is available.

Universities that have insisted that all lectures and tutorials be made available through a virtual learning environment have then experienced very significant reductions in student attendance. If a significant proportion of students enrolled in a module fail to attend, that impacts on the

experience of the students who do attend, and so other students decide not to attend. This downwards spiral continues, to the extent that a module with 50 students enrolled may only have 2 or 3 turning up to a lecture. In some cases, academics have to give lectures to empty classrooms because the lecture must be captured in order for it to be transmitted to the students via the web.

This causes a number of issues. Students who do not attend may feel disconnected, and are less likely to complete. Students who attend classes in person and see other students working on assessment tasks are motivated and challenged to work in a way that students working by themselves are not. A common phenomenon across universities during the study period before exams is that libraries are full of students studying. They generally could have studied more easily in their homes or dormitories, but they have worked out for themselves that they can focus better when they are surrounded by other students also studying.

2) The danger of failing to develop soft skills

Perhaps more seriously and less visibly, generic skill sets that were developed consequentially from learning activities (such as communications and team working skills) but were not formally assessed may now be not developed.

In an age of increasing digitalisation and the emergence of practical Artificial Intelligence, employers are very clear about the increasing need for these generic skills and the decreasing need for a knowledge base.

These so-called soft skills are developed through students working together, discussing together and presenting their work and ideas, in other words experientially. However, we have no standard way of classifying, assessing and certifying these soft skills. Consequently, when a student is able to complete a qualification through a virtual pathway, they may well have developed and demonstrated the disciplinary knowledge and skill set prescribed for the qualification, but not the same set of soft skills developed by past students who participated physically in the learning journey.

3) The need to increase the development of skills of intercultural competence

A further challenge is that in our globalised world there is an increased need for intercultural competence. Not only are our classes more and more multicultural, but the workplace is also increasingly diverse. The globalised economy sees supply chains spanning countries and continents, with the consequence that people from different cultures are working together to make these supply chains work. Multinational companies hire globally and regularly move employees from country to country.

However, there is also a lack of an agreed specification of the components of intercultural competence, and the only standard approach for the development of intercultural competence is the 'sink or swim' approach for both students and faculty. Students who spend all or part of their education in another country are expected to adapt to that country, and academics confronted by classes which are increasingly diverse are given no guidance in terms of

developing intercultural competence in all of their students, or indeed developing intercultural competence themselves.

Conclusions

The core challenge facing universities therefore is to adapt to a digitised global society where the knowledge and skills traditionally imparted, assessed and certified by universities are of decreasing value, while the generic soft skills, including intercultural competence, which have been imparted experientially and through osmosis (if at all) and not formally assessed and certified, are becoming of greater and greater importance.

So to summarise, I have identified three changes that have occurred since the time of John Henry Newman: the globalisation, interconnection and digitisation of our society; the massive increase in participation in higher education; and the increased recognition of the value of diversity. I have also identified three things that have been constant since Newman's time: the persistence of teaching and learning through a series of lectures and tutorials, and certification of the journey of a student through a coherent program of study with certification of the level of achievement of the student in that programme; and finally the debate around the value of Arts and Humanities versus the useful sciences, and the right combination of breadth and depth of education.

Finally I talked about some of the challenges we face in this globalised, digitised and connected age including the potential disconnection of students from the physical university through virtualisation of the learning experience; the danger of then failing to develop the people skills that since Newman's time we have claimed universities develop; and the need for us to increase the development of people skills and in particular skills of working interculturally.