

In July 2010, Brian MacCraith was appointed President of DCU, a post he will hold for ten years. Apart from supervising the expansion of the university, which includes the merger with St. Patrick's College, Brian MacCraith is committed to reforms at second level. He heads up the STEM [Science, Technology, Engineering and mathematics] Education Review Group. He regards the current linkage of CAO and Leaving Cert. as "hugely negative for students' "Leaving Cert. is a single assessment tool primarily crammed into two weeks every year, reflecting at least three years and possibly six years. Is it driving the sort of attributes that the college is seeking for its graduates? I think not." In this article he lets us know how important it is to 'get the fundamentals right'.



THE

BURNING

ISSUES



Getting the fundamentals right in our education system

As I write this article, I have just heard, for the third time, a radio advertisement promoting a 'grind school' programme for both Junior Cycle and Senior Cycle students to be held over the Easter 'holiday period'. The words 'grind school', conjuring up images that are alien to the essence of education, are not my own choice here; rather, they are used, presumably with positive intent, in the title of the organization offering the 'service'! The advertisement went on to proclaim that the primary objective of the 'grind school' was to maximize the CAO Points that would be scored by students attending the Easter holiday programme – and, yes, clearly Junior Cycle students need to embrace that culture as early as possible!! As the ad was aired on RTE Radio 1, one must assume that the targeted demographic was the parent group and not the students themselves. This cameo captures so many issues that are problematic with our education system in Ireland:

- A CAO-points-driven education culture (at 2nd level)
- The concept of offering 'knowledge-cramming' programmes during student holidays, evidently to compensate for the 'failure' of our school system
- The uniquely Irish phenomenon of 'grind schools' and the peculiar oxymoron of 'holiday grinds'
- The assumption that the definition of success in education for parents is a high score in the CAO Points system.

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The role of education

Education is valued highly by Irish society and much is expected from it. A publicly-funded education system has both a societal and a personal function. In the context of education as a public good, it is recognized that the quality of a national education system correlates with both social and economic development and that a high quality system will be central to Ireland's future prosperity and our wellbeing as a society. At the individual level, its primary purpose, in my view, is to enable students to realize their full potential and to flourish in the challenging world of the 21st Century – in their personal lives, in civic society, and in the workplace. This high-level goal is multi-faceted but, in general, we seek to excite students along the path of discovery, to stimulate creativity and to foster critical analysis based on a solid foundation of knowledge. As Noam Chomsky once stated:

'Education should be about encouraging creative exploration, independence of thought, and willingness to cross frontiers'. He went on to state that it should be about 'enabling people to learn on their own'.

Being involved in education is not only a great privilege but it also confers a great responsibility. On the one hand, we experience the excitement and immense satisfaction of developing the minds of our students and conveying insights and understanding to them. On the other hand, we are acutely aware that we play a pivotal role in their lives and, in particular, in determining their respective future careers. It is imperative, therefore, that we focus our efforts on ensuring that our education system, at all levels, develops rounded citizens that can flourish in our society.



Adapting to the dynamic world around us

If we accept that education should prepare students to flourish in the world they occupy, it is clear that the nature of our society should be reflected both in our curricula and in the modes of teaching and learning that we adopt and encourage. Students today live in an entirely different world to the one that existed 20 years ago.

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They live in a dynamic society that is globalized, connected, knowledge-based, ageing and largely urbanized. For example, within last 15 years Ireland has moved from being a largely mono-ethnic society to being the most globalized country in the Western world. This massive transformation has implications for many aspects of Irish society and these should be addressed in our education system. In this world of instant access to information, the ability to retain a vast array of knowledge is no longer an asset. Rather, the emphasis has to be on the ability to assess the quality of information, to synthesize it and to apply it appropriately. Students of all ages occupy a 'world of screens' and, very soon, will be exposed to a world where everything is connected digitally, the so-called 'internet of everything'. So, in addition to developing discipline-specific knowledge and to fostering curiosity, critical thinking and creativity, we must equip our students with a set of personal attributes that will enable them to navigate this rapidly changing world of the 21st century. These attributes include effective communication skills, problem-solving abilities, digital intelligence and awareness of global challenges. These should be integrated into every level of the education system, and developed in a consistent manner along the continuum of learning from early childhood.



The Role of Assessment

Consideration of the role of education in the development of rounded citizens brings us to the critical issue of assessment.

“What you assess is what you get; if you don't test it you won't get it.”

These words from psychologist Lauren Resnick have appeared time and again in education literature. They capture very concisely our understanding that assessments drive both learning and teaching behaviour. We know that most students take seriously only those topics that are assessed regularly in examinations and that teachers feel pressurized to 'teach to the test'. The combination of the CAO Points System and the Leaving Certificate Examination is having a major negative impact on our education system because of the 'culture' of teaching and learning that it engenders. In particular, it creates a culture where rote learning and regurgitation is the surest pathway to success, a culture in which 'grind schools' can, and do, flourish.

The Universities (who have ultimate control over the CAO Points System) are actively engaged in transforming the system and dramatic changes that will 'take the heat out of the Points race' are on their way in the near future, by virtue of the work of the Task Group on Reform of University Selection and Entry (TGRUSE), chaired on behalf of the universities by my colleague Prof. Philip Nolan of Maynooth University. The move to broaden entry routes and reduce the number of CAO codes is already evident in the actions of a number of Universities, including DCU. Many other important reforms will follow. But, the other half of the problem needs to follow quickly. The high-stakes, single terminal examination that is the Leaving Certificate is more appropriate to the 19th Century than a modern, innovative knowledge society. We need to develop and implement more sophisticated and innovative assessment modalities at all levels in education. In particular, the Junior and Senior Cycles at second level merit immediate attention and it is logical to begin this process at Junior Cycle. Some assessment modalities can exploit the advantages of digital technologies that play such a central role in the world of our students. Properly developed, we can move from 'assessment of learning' to 'assessment for learning', whereby the assessment itself can be used as a tool to improve learning. If we wish to foster the development of particular attributes in our students, then we must start assessing those attributes using state-of-the-art methodologies.

Our major problem that has, to date, retarded the introduction of such innovations is the absence of a recognised centre of expertise in assessment. The current, unfortunate dispute between Teacher Unions and the Minister for Education and Skills over Junior Cycle reform is occurring in a vacuum of expertise, and objective, informed comment is conspicuous by its absence. I am pleased that DCU has been able to address this issue in recent months by attracting private funding to support the establishment of the Centre for Assessment Research in Education (CARE). Moreover, this centre will be headed up by Ireland's first Professor of Assessment (the Prometric Chair in Assessment); the position has been advertised at the time of writing. The centre will carry out research and policy development in innovative assessment methodology, with a particular focus in the national context.

The CARE centre will not only be an important source of expertise and innovation in the area of assessment, it will also play a key role in teacher education by virtue of its location within the proposed new Institute of Education at DCU. This new Institute is one of the major outcomes of the planned coming together of St Patrick's College, Drumcondra (SPD); Mater Dei Institute of Education (MDI) and Church of Ireland College of Education (CICE) within Dublin City University (DCU). The new DCU Institute will house the largest grouping of education expertise in Ireland, and will provide both Initial Teacher Education (ITE) and Continuous Professional Development (CPD) for teachers and educators across the full education continuum, from Early Childhood through Primary and Secondary to Third Level. This Institute will conduct pioneering research of international significance in priority areas for 21st Century education, including, for example, STEM (Science, Technology, Engineering and Mathematics) education, special-needs and inclusive



education, literacy and numeracy, arts education, further education, assessment, digital learning, as well as assessment for education.



Conclusion

The development of rounded citizens who can flourish in various ways in our globalised society should be a central objective of our education system. Significant reforms are necessary if we are to achieve this. But, getting these fundamentals right is a critical issue if we are to deliver on our responsibilities to our students.

Professor Brian MacCraith FinstP, MRIA, President of Dublin City University

Brian MacCraith received his B.Sc. in Physics at NUI, Galway, where he also completed a M.Sc. and Ph.D. in Optical Spectroscopy of Laser Materials. In 1986 he joined the staff of Dublin City University (DCU) where he has played an active role in the teaching of Physics and research in a wide range of associated areas.

In 1997, Professor MacCraith was a Visiting Scientist at the US Naval Research Laboratory in Washington DC, working on Biowarfare Detection at the Centre for Biomolecular Science and Engineering. In October 1999 he became founding Director of the National Centre for Sensor Research [NCSR] at DCU.

The NCSR has now grown to a scale of over 200 researchers working on cutting-edge developments and applications of physical, chemical and biological sensors.

Professor MacCraith is renowned internationally for his research on optical chemical sensors and biosensors. He is a member of the Royal Irish Academy (RIA), a Fellow of the Institute of Physics, a Fellow of SPIE (the international Photonics Organisation), and a Fellow of the Irish Academy of Engineers.

Professor MacCraith also has a strong profile in teaching and learning activities. He has had a substantial involvement in STEM (Science, Technology, Engineering and Mathematics) Education activities through membership of the Institute of Physics Education Subgroup, the RIA National Commission for the Teaching of Physics and various DCU committees dealing with this topic.

He has also organised Training Workshops for Physics teachers and, with funding from Intel Ireland, the "Young Women in Physics" series aimed at attracting Secondary schoolgirls into physics careers. In his roles as Director of the NCSR and the BDI, respectively, he contributed strongly to the establishment of Education and Outreach programmes with a special focus on enhancing Primary and Secondary School STEM Education.

In July 2010, he was inaugurated as President of Dublin City University, a position that he will hold for 10 years.