

Chancellor, Vice-Chancellor, Vice-President and Council Secretary, Pro Vice-Chancellor, academic staff, distinguished guests, graduates, family and friends.

Rank, privileges and responsibilities. Graduates, these words, spoken by the Chancellor when admitting you to your award, must never be forgotten. Let us therefore reflect on the significance of the education you have received and the responsibilities that have been placed in your hands.

Lord Brougham is attributed to have said, "Education makes a people easy to lead, but difficult to drive; easy to govern, but impossible to enslave". This sentiment, as true today as when it was spoken two centuries past, links education with the functioning of society as a whole. The importance of this link cannot be overestimated. Education empowers you to make informed choices in life.

For those graduates whose careers will be in education, the responsibility is perhaps greatest of all; your words will be remembered by those you teach, moulding the minds of the next generation. (Which words get remembered is at times hit and miss; I wish you better luck than I!)

In fact, it is not just in a teacher-student relationship you have a great responsibility to choose your words wisely; communication, willingness to think and reason, and respect for others are essential for a comfortable and well-functioning society. In a democracy, the government listens to the public, and you are the public. It is through your daily interactions with friends and colleagues that public opinion is formed.

To be effective at communication – and remember it is through communication that decisions are influenced and nations are shaped – to be effective at communication it is first necessary to understand people are different; they think differently and they communicate differently.

This leads me to highlight the "two cultures" premise of C.P. Snow. Sir Charles Snow was an English physicist and novelist, who also served in several important positions in the UK government. This rare combination of talent - a scientist, a literary intellect and a public servant - meant Snow was well-placed to observe the similarities in and differences between the humanities and the sciences, and how these differences influenced government and society.

In his Rede Lecture, delivered on 7 May 1959, Snow argued that there was a great divide between the scientists and those in the arts and humanities; these influential groups misunderstood each other to an increasing and disturbing degree. Such mutual incomprehension could not be good for any country.

For example, after reading about these concerns of Snow, a Harvard freshman class went to hear a distinguished poet and an equally distinguished biologist discuss them. Having listened carefully, a student came away with the "dead sure certainty that C.P. Snow had it right." The poet and the scientist had spent the entire evening talking past each other. "I don't think either one heard a word the other said."

Let us be clear, this perceived inability to cross-communicate is not confined to the cloistered corridors of universities but is applicable to the community in general.

Snow perceived that in social circles, his friends in the sciences and in the humanities rarely mixed; they therefore did not even have the opportunity to further their understanding of each other's ideas and motives.

As you can probably tell from my demeanour - they say an extroverted mathematician is one who looks at your shoes rather than his or her own shoes - I chose to study science and engineering at university. You will be forgiven then for expecting me to extol the virtues of scientific thought, and in particular, encouraging and enthusing primary and high school students to study science at University.

In fact, I agree with Snow; both the sciences and the humanities are essential, and we need them to understand each other and to build on each other's strengths. Although the humanities and the sciences may argue and communicate in a different way from scientists – and recognising this is the most important step towards mutual understanding and cooperation – in fact the underlying motivations are largely the same; both groups want to understand how the world works, and both want to make the world a better place.

So to those naturally inclined towards the sciences, I urge you to put time aside to learn about the humanities; seek to understand why great novelists write what they do, understand what history teaches us, understand how nations are governed and how real-life decisions are made. Above all else, understand the techniques for how arguments are put forth in these disciplines and how ideas are debated amongst such scholars.

And for those inclined towards the humanities, put time aside to learn about the sciences, about how scientific discoveries are made, about what is considered to be 'scientifically rigorous' and what is not. Above all else, understand the system of scientific thinking that underpins modern science. Furthermore, you may be surprised to learn that, to a passionate mathematician, mathematics can be just as creative, beautiful and inspiring as other forms of Art.

Having spoken about being aware of the different forms of communication and thought, let us return to education and learning in general. The best education you can give people is to teach them how to learn for themselves. An analogy is the proverb, "Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime."

The key to learning is about asking the right questions. (Perhaps reading a well-written exposition twice is beneficial because on the first reading, you subconsciously deduce what the important questions are, and on the second reading, you find the answers you are looking for?) Regardless, learning is about asking the right questions. The following anecdote endeavours to illustrate this.

Several years ago, an eminent US researcher visited Australia and gave a talk about experiments involving buses which were being conducted at his university. The researcher was an engineer and his group were developing sophisticated control and signal processing algorithms for the automation of buses and then designing, building and implementing the algorithms in hardware to see if they actually worked. In other words, they were developing an auto-pilot for buses rather than aeroplanes.

After the talk, the audience were invited to ask questions. An Engineering Professor stood up and asked an obvious question. "How much does it cost to build and implement your ideas?" Upon receiving the reply that the cost to date was very high, the Professor showed great perception by following up with the question, "Have you considered hiring a bus driver?"

Although the anecdote was meant in jest, I do believe that asking the right questions is the key to learning, and teaching people how to learn for themselves is the primary aim of education.

Through your own experiences and those of others, you will develop new and better ways of teaching. In our society, little if anything is static, and this is certainly true of education. It is a mistake to believe that mathematics was etched in stone centuries ago; at this very minute, old ideas are being refined and new ideas are being dreamt up. When teaching others, instil in them the confidence not to learn by rote, but to learn by challenging what you are telling them, and have them form their own conclusions - the best argument eventually wins.

Following this train of thought leads to the importance of research. A dictionary definition of research is, "the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions". The key words here are "systematic investigation", "establish facts" and "reach new conclusions". Research is what moves us forwards. It is not always easy to see this though because the timescales involved can be quite large; it is not uncommon for there to be a delay of 20 or more years between a discovery by a researcher and a practical outcome such as a new medical device.

At this point, permit me to summarise, in no particular order, the messages I have endeavoured to convey to you today.

1. Continue on your quest for knowledge; never stop learning.
2. Recognise there are different cultures of thinking, reasoning and communicating. Become familiar and conversant in these different cultures.
3. When you go into the community, take with you your belief in the value of education and research; the value of schools and universities to our country.
4. The conferring of your award brings with it great responsibilities; we must each play our part in society.

There is a book which has been in my family for several generations, entitled "Noble thoughts in noble language". Turning to "Education, Art of", I found a passage starting with, "The art of education requires skill in fostering a love of mental activity and a desire of knowledge". On reading some more, I came across advice on how to learn a new language, "Two rules. Begin, and Keep on!"

Graduates, this graduation ceremony - whose customs date back to the 12th century when the first universities came into existence - marks the transition from one stage of your life to another.

Begin, and Keep on!