

**Speech by Professor SHIH Choon Fong, NUS President, at University Awards
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Two 'P's and Two 'C's in Our Quest for Excellence

INTRODUCTION

Welcome to University Awards 2004.

I am delighted we are once again celebrating the achievements of our colleagues together.

Our annual University Awards recognize and honor the best in our community. Some have excelled in educating students. Some have scaled new heights in research while others have served University and country with distinction. Each of our winners has scaled impressive peaks. Your achievements help raise the standing of NUS. We take pride in your achievements.

Last year, I spoke on "The Genius in Enduring Success". I called for two 'P's. This year, I am raising my standards and urging for 2 'C's.

From Kindergarten to JC, students and their parents aim higher than 'C'. It is the Singapore tradition for the local newspapers to celebrate students with ten or eleven 'A1's. These students make the headlines. In the news reports, parents often share the secrets of their success, including what they feed their kids during the exams.

I have not been researching the dietary habits of our award winners today. Or else I would have loved to share with you the dietary secrets of their success, including for example, which restaurant Prof Tommy Koh regularly dines at, or what Prof Bernard Tan loves to eat.

EXCELLENCE AS OUR HALLMARK

This evening, you have been introduced to some of the talented individuals in our University. Their accomplishments span diverse areas in research, education, and service. Their endeavors have made a difference to our University and society.

Our Outstanding Educator Award is presented to faculty members who have excelled in engaging and inspiring students in their discovery of knowledge. This entails drawing out the students' curiosity, helping them see the world with fresh perspectives and encouraging them to ask questions.

Our Outstanding Researcher Award recognizes researchers whose work have significantly impacted and expanded the boundary of knowledge, and positioned NUS at the forefront of their particular areas of expertise.

Our Young Researcher Award acknowledges researchers whose work show promise in extending the frontiers of knowledge in their respective fields.

Our Outstanding Service Award honors sustained contributions of distinction by an individual in the service of the University and society.

Is there a formula to achieving excellence? Can excellence be measured by averaging one's achievements and contributions?

In our orderly society, we tend to measure things. We know how to grade food courts. We grade the cleanliness of public toilets. How do we grade excellence?

Is excellence about solving every textbook problem? Is excellence about getting eleven 'A1's? Indeed, some schools have been producing more than their share of 'excellent' students, who excel in acing exams. We could call them 'exam geniuses'.

EXCELLENCE IN RESEARCH

Let's see if we can grade a famous professor.

Many of you would be familiar with Stephen Hawking. Hawking suffers from a debilitating motor neuron disease, or ALS (Amyotrophic Lateral Sclerosis). He is wheelchair bound and speaks through a computerized voice box.

Hawking is the celebrated author of scientific bestseller *A Brief History of Time – From Big Bang to Black Holes*. He is often referred to as the Newton of the 21st century. Einstein's General Theory of Relativity predicts the existence of Black Holes, where gravity is so strong that not even light can escape. Hawking, however, showed that due to quantum mechanical processes, Black Holes in effect emit light and other forms of radiation, causing them to slowly evaporate and

eventually disappear! Hawking challenged Einstein and introduced a new understanding of the universe.

Shall we attempt to grade Hawking?

For research, Hawking is clearly 'A+++'. However, he has severe difficulties in speaking, requiring additional support and resources. For teaching, where speaking skills are critical, we might give him at best a 'C+'.

With his physical disabilities, Hawking would not be effective in carrying out administrative duties and he certainly cannot be running around doing errands for the Faculty. I am afraid Hawking would be graded an 'E' for service.

Were we to adopt a system of averaging, what overall grade might Hawking receive? Hawking could come out a 'C-'. While this might be just enough to retain him in a university that uses a system of averaging, he would need to do better in teaching and service. Colleagues might even advise him to cut back on his research. Would this recipe work?

How is Hawking treated in Cambridge? Hawking has a specially furnished disabled-friendly accommodation surrounded by gardens. Hawking holds the Lucasian Chair in Mathematics. Previous holders of the Chair include Newton and Dirac. They represent the most influential and singular minds in science the world has known.

A mechanical recipe of assigning uniform weights to strengths and weaknesses can breed mediocrity. It does not sufficiently recognize and reward distinctive talents. Such a system of averaging may be alright if one were playing in the second division, but not if one aspires to play in the premier league.

EXCELLENCE IN EDUCATION

I would like to share with you an example of a very different kind of scholar – Arnold Sommerfeld.

Sommerfeld's academic career spanned the latter half of the 19th century and the first half of the 20th. He was widely regarded as an influential physicist. So how was he influential?

Five of his students, four PhDs and one postdoc, each won the Nobel Prize – Heisenberg (known for the Uncertainty Principle), Pauli (known for the theoretical

discovery of neutrons), Debye (known for his work on X-ray crystallography), Bethe (known for his work on nuclear reactions) and Pauling (who won two Nobel Prizes – Chemistry and Peace).

Several of Sommerfeld's closest colleagues, including Max Planck and Albert Einstein, also won Nobel Prizes. This unparalleled feat would almost certainly have won Sommerfeld a Nobel Prize for Education if there were one.

Max Born, Nobel Laureate and fellow physicist, said this about Sommerfeld as a teacher: "Theoretical physics ... attracts youngsters ... who speculate about the highest principles without sufficient foundations. It was just this type of beginner that Sommerfeld knew how to handle, leading them step by step to a realization of their lack of actual knowledge and providing them with the skill necessary for fertile research."

Another colleague and teacher, Felix Kline, paid this tribute, "Sommerfeld ... was the great systematizer and teacher who inspired many of the most creative physicists in the first 30 years of [the 20th] century."

One of Sommerfeld's prodigies Wolfgang Pauli, a night-owl, seldom attended his morning lectures. Had Sommerfeld penalized Pauli for poor class attendance, Pauli may not have graduated. Instead, Sommerfeld asked the young Pauli to author a review on relativity in the Encyclopedia of Mathematical Sciences, a task usually assigned to senior colleagues.

Sommerfeld was one of the most inspiring educators of his time. He had the rare ability to recognize hidden talent and tolerate eccentricities. Several of Sommerfeld's physics textbooks remain in print, some receiving five star ratings on Amazon.com. His influence persists to this day.

There is a saying by Newton: "If I have seen farther than other men, it is only by standing on the shoulders of giants." Through his contributions as an educator, Sommerfeld is indeed a giant among scholars.

Contrasting Sommerfeld with Hawking, we can appreciate that the greatest educator might not be the greatest researcher, or vice versa. Likewise, great educators or researchers may not be the most effective in carrying out administrative duties or university outreach activities.

In short, in the quest for excellence, a mechanical recipe of averaging does not work.

CURIOSITY

Now, I would like to come back to the two 'P's and the two 'C's in the title of my speech. The two 'Ps', as some may remember, refer to Perspiration and Perseverance.

The two 'C's are the quintessential qualities in our quest for excellence: Curiosity and Courage. Both Sommerfeld and Hawking exemplify all four qualities. Today I would like to expand on curiosity and courage.

Curiosity, or what Einstein called a child-like sense of wonder, makes us question things that others do not even notice. Children are naturally curious. Unfortunately, as they grow up, they often lose their sense of wonder and stop asking questions. But two popular questions remain: "What is the right answer?" ... "Which is the right answer?"

How should I answer?

The great French novelist Anatole France, Nobel Laureate in Literature, had this to say: "The whole art of teaching is only the art of awakening the natural curiosity of young minds ...". Einstein added, "It is the supreme art of the teacher to awaken joy in creative expression and [in] knowledge."

The educator's role is to draw out students' curiosity, to inspire them, to make them see the world with fresh perspectives, and to lead them to ask different and interesting questions.

Curiosity is also a powerful force that drives research. The researcher sustains his joy in knowledge and creative expression and follows a child-like curiosity, leading him to untrodden paths of discovery. As Einstein put it: "I am neither especially clever nor especially gifted. I am only very, very curious." He went on to say, "The important thing is not to stop questioning."

At the Stanford Club annual dinner this past weekend, Acting Minister for Education Mr Tharman Shanmugaratnam said, "At the core of the best universities ... is an intellectual method that encourages questioning ... The skepticism towards existing wisdom leads to new ways of thinking, and breakthroughs in knowledge. Deepening this spirit of enquiry is the most important challenge for universities ..."

COURAGE

In last year's State of the University Address, I spoke on NUS staying the course in turbulent and uncharted waters. When confronting uncertainty in today's rapidly changing world economy, fear is natural. How do we deal with fear? Let me quote Mark Twain: "Courage is resistance to fear, mastery of fear – not absence of fear." In short, we need courage to deal with uncertainties and fear. Letting go of certainties requires courage. Dealing with uncertainties also requires courage.

Let me paraphrase Yang Zheng Ning, Chinese Nobel Laureate in Physics: In China, students are taught that there were Newton, Maxwell and Einstein. They are told, "Who are you to challenge these great people of the past?" This mindset produces a timid attitude which is a handicap later on in life when the students want to be more creative or more imaginative. Yang emphasized that in frontier research, you are always half knowing and half not knowing. Yang said, "You get right to the edge, and then you leap."

Speaking on the changing education landscape in a knowledge-based economy, DPM Dr Tony Tan said, and I paraphrase him: There is no set and tested formula for success. To do well, our people need to be flexible enough to respond to frequent and discontinuous changes, and be able to create new opportunities for themselves. We have to imbue our students with the ability to innovate, the critical skills to exploit ideas, the confidence to dream big and take risks, and the courage to persevere in adversity.

Inspiring students requires courage. Like Sommerfeld, you would be leading your students, by your example, along untrodden paths to the cutting edge. At the cutting edge, you often no longer know where the next leap is. By suggesting a way forward, you create a sense of adventure and allow your students to catch a glimpse of the knowledge frontier, inspiring them to press on. This is where teaching and learning become exciting.

Indeed, curiosity and courage are quintessential qualities of a scholarly community. They enable us to inspire our students, do pioneering research and serve with distinction.

OUR UNIVERSITY'S QUEST FOR EXCELLENCE

Our University's quest for excellence in three areas – research, education and service – encompasses multiple goals. Many of the desired outcomes are intangible and not readily measured.

Increasingly, intellectual breakthroughs do not occur within a single discipline. They tend to occur where there is fertile space for academics from diverse disciplines to explore as well as connect and collaborate with each other. In this way, diversity becomes the strength of a university community.

All of us are stakeholders of this University, investing our talents and the best years of our lives. University management does not have a crystal ball for predicting where the next exciting developments will come from. As we scale greater heights, I envisage Faculties to be well-springs of ideas. Correspondingly, I see a need for more bottom-up involvement in developing initiatives and making decisions.

We are moving away from a top-down management of our Faculties and departments. Deans will be taking on greater responsibilities, with commensurate authority, so that they can more effectively lead and efficiently manage their Faculties, within a framework of accountability and shared responsibility.

There is also a need for greater differentiation to cater for genuine differences among our Faculties and disciplines. In doing so, we need to strike an appropriate balance with consistency and equitability.

In performance appraisal and compensation, we are making progress to better recognize colleagues who strive for and achieve excellence. We have had extensive and valuable consultations on tenure extension. We will be working with our Deans to come to a decision on this matter this year. Maintaining the rigor that has been built into our promotion and tenure system, we will streamline and speed up the assessment process.

At the same time, we appreciate that alumni and friends are also part of our diverse community. They invest in our community in many ways – championing our cause, offering their services and making gifts towards our Endowment.

In facing uncertainty and managing change, we need courage to persevere, courage to press on. In a sea change, NUS can ill afford to remain static. We have a shared responsibility to move forward, and ensure a healthy return on our investment.

CELEBRATING EXCELLENCE – MUSIC FROM THE HEART

Winners of our University Awards exemplify our quest for excellence in education, research and service. My heartiest congratulations and deepest appreciation to this year's winners. You have done yourself and NUS proud.

We have heard wonderful citations and presented elegant trophies to our award winners. We applaud and share our winners' joy. In the spirit of raising standards, I am calling for some original music-making.

It gives me great pleasure this evening to inaugurate our Kent Ridge ensemble, "*Xin Yun Quintet*" (心韵五重奏), with the debut of an original composition called "*Shan*" or "Mountain".

"*Shan*" is a unique piece. It was specially composed by Dr Chew Seok Kwee, Music Director of Singapore's own Creative Technology. She also proposed the name *Xin Yun*, which means "music from the heart".

Seok Kwee has dedicated "*Shan*" to the memory of her late god-sister, Jennifer Mao, our dear colleague who passed away eighteen days ago after a courageous battle with cancer. Through her writings and commentaries, Jennifer has been an influential figure in Singapore's Chinese community. In a personal letter published yesterday, DPM Lee Hsien Loong wrote that Jennifer's demise is a major loss to NUS and Singapore. Jennifer personifies our quest for excellence in serving community and society.

I hope the *Xin Yun Quintet*'s performance of "*Shan*" will lift our spirits and inspire us in our quest for excellence.

Let's celebrate the achievements of our colleagues.

Enjoy the performance. Thank you.