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LECTURE BY DR TONY TAN KENG YAM, DEPUTY PRIME MINISTER AND MINISTER FOR DEFENCE, AT THE CHULALONGKORN UNIVERSITY, THAILAND, HELD ON
FRIDAY, 14 JANUARY 2000 AT 10.30 AM

"UNIVERSITIES IN THE KNOWLEDGE ERA -- CHALLENGES AND RESPONSES

Dr Thienchay Kiranandana
President, Chulalongkorn University

Distinguished Guests

Ladies and Gentlemen

I would first like to thank Dr Thienchay for inviting me to deliver this lecture at Thailand's oldest university. Chulalongkorn University has had an illustrious history since it was founded in 1917. The university has played a key

role in nurturing leaders for Thai government, business and industry. Its alumni serve actively in the public and private sectors, contributing to the social and economic development of the nation. Today, Chulalongkorn University is not only a pioneer but also a leader among Thailand's institutions of higher learning, and has helped to shape the country's directions in higher education and beyond.

When I was invited to speak on the challenges and responses of universities in the light of the global and regional imperatives of the knowledge era, it struck me that higher education institutions in the region and beyond are grappling with similar issues and trying to find answers to largely the same questions. This is gratifying for it shows that there is much that we can learn from each other. What I will be sharing with you today is drawn largely from Singapore's experience. However, while the exact prescription may differ in your context, I believe that there are many common areas of concern and challenge to us.

GLOBAL AND REGIONAL TRENDS AND IMPERATIVES

We live in an era of unprecedented globalisation and technological advancement, particularly in information technology. The Internet, mass communications, and ease of travel have enabled us to surmount cultural and geographical boundaries that have traditionally separated people across and even within nations. The Asian economic crisis of 1997-1999 has demonstrated how vulnerable we are to what takes place in the international economy. We now function within a global economy. Inter-dependence and active engagement with the region and rest of the world, rather than isolationism, are key to survival and success in the global village we live and work in.

In this age of globalisation and rapid technological advancement, knowledge industries play an increasingly important role in wealth creation and economic growth. In the past, economic development has been driven by capital and labour, the traditional factors of production. As we make the transition to a knowledge-driven economy, intellectual capital is a key factor of production which increasingly contributes to the bulk of economic returns.
In a knowledge economy, the economic competitiveness of a country does not necessarily depend on vast natural resources, a large population and physical

capital, although having these assets certainly help. It is the quality of human capital, and the ability to generate innovation and effectively exploit new ideas and inventions on the global market that are now critical for a country's economic growth. Hence, education, at both the pre- and in-employment stages, is the key to enhancing a country's economic competitiveness.

CHALLENGES FOR UNIVERSITIES IN THE KNOWLEDGE ERA

What then is the strategic role that universities can play in the knowledge era? Universities have traditionally been centres of learning where scholar-teachers imparted knowledge and educated professionals and leaders for the service of society. In the 19th century, with the advent of the research university, some institutions also took on the role of advancing the frontiers of knowledge. These were epitomised by the German Humboldtian model and Johns Hopkins University in the USA. While these twin roles of knowledge dissemination and creation still remain relevant, universities in the knowledge era also face the challenge of contributing to the application of knowledge and technology transfer.

Graduates of the knowledge era will need to be flexible, life-long learners, able to adapt to the fast pace of change and constantly upgrade their skills and knowledge. They will need analytical and problem-solving skills, and inter-personal and communication skills that will enable them to work with others. They must also be creative and entrepreneurial, able to invent new ideas and products that will create and capture new markets.

Given the explosion of knowledge and technology, it is no longer possible for universities to teach its students all there is to know in order to be ready for the workplace. Graduates must “learn to learn” and develop social competencies. In this light, a university not only needs to prepare its graduates to solve known problems more quickly, but must educate its graduates to make new connections and form new insights.

RESPONSES TO THE CHALLENGES

Universities will need to respond to the challenges of the knowledge era by strengthening their roles in the areas of knowledge dissemination, creation, and application. This has implications in all three key areas of undergraduate

education, postgraduate education and research and continuing education and training. Let me deal with these in turn, starting with undergraduate education.

UNDERGRADUATE EDUCATION

A university's impact on society is felt most broadly by the quality and type of undergraduates it turns out. Many of these individuals go on to careers in business, industry and public service. Reflecting the division of labour in society and the economy, undergraduate education is typically delivered according to discipline. These cover basic disciplines such as the humanities and sciences, to more applied courses of study like business and engineering.

Such an arrangement is fundamentally sound. Learning is best achieved within the structure and mode of inquiry of the different disciplines. However, as we look to the future, we need to expose undergraduates to a broader range of skills, in order to prepare them for workplaces that need a multi-disciplinary and systems approach to problem-solving. Undergraduate university education should not only prepare students for the world of today but also for a world where there will be new jobs which have yet to be invented and challenges not foreseen today.

Over the past 3 years, the two public universities in Singapore, the National University of Singapore (NUS) and Nanyang Technological University (NTU), have begun to systematically broaden undergraduate education. Both universities require their undergraduates to take modules that are beyond their fields of specialisation. These comprise about 15-20% of the undergraduate curriculum. NUS also launched the Core Curriculum for its top students in July 1999.The Core Curriculum, constituting about 25% of a 4-year undergraduate programme, seeks to expose students to different ways of thinking and value systems in both the arts and sciences.

In addition to the systematic broadening of undergraduate education, Singapore's two public universities have also sought to boost the quality of the education they offer through the implementation of talent development programmes for the most able students. They have also introduced more innovative ways of teaching and assessment, with a focus on creative and critical thinking.

Since going to university remains a goal that is highly prized by society, the university admission system in any country has a disproportionate influence on the motivation and behaviour of students throughout a country's education system. If the sole criteria for admission into university are examination results, school students, teachers and parents will tend to focus on preparing for the examinations.

However, throughout East Asia today, there is an increasing recognition that a university admission system that assesses applicants solely on the basis of academic results has its limitations. While such a system is objective and transparent, it does not fully take into account a student's talents, communication skills, reasoning capacity, inter-personal skills, and other key character attributes and skills that would enable him to succeed in the knowledge economy of the new millennium. In Singapore, we took one full year to deliberate on this issue. There are aspects of the existing system which we prize, such as the emphasis on rigour, discipline, hard work and achievement. We set about improving the system, to find out where we fall short and remedy it. The Government accepted the recommendations of the Committee on University Admission System to add reasoning tests and co-curricular activities to examination results in order to yield a broader university admission system. In 2004 or perhaps later, project work will also be incorporated. The importance of the new system lies in the signal it sends to Singapore schools and society on the qualities and values that we desire in a globalised and knowledge-intensive economy. These include intangible qualities such as creativity, initiative, perseverance, curiosity and independence, which are cultivated in the process of undertaking project work and participating actively in co-curricular activities. Singapore is not alone in this respect. East Asian economies such as South Korea and Taiwan are also reviewing their university admission system to include broader evaluation criteria.

POSTGRADUATE EDUCATION AND RESEARCH

Let me now touch on postgraduate education and research. While undergraduate education gives a university its broad reach, it is postgraduate education and research that enable a university to make a deep impact on society. In the knowledge era, the role of universities in knowledge

creation will become more important than ever. A mark of a world-class university is its first-rate research. The universities also constitute a significant resource of new ideas and inventions with the potential for commercial applications.

As with leading universities in Asia, Singapore's universities have taken steps to enhance their research capabilities, and have engaged in more research initiatives that are multi-disciplinary in nature. New university-level research institutes and centres have been established in the past two years, such as NUS's Institute of Engineering Science and NTU's Biomedical Engineering Research Centre. These involve the partnership of staff and students from different schools and faculties, and the conduct of advanced research from a longer-term multi-disciplinary perspective. Our universities are also collaborating with national research institutes and centres, and strengthening links with industry through joint projects in high-tech cutting-edge research. In quantitative terms, the universities expanded the number of their research staff by 10% and research students by 73%, particularly in the Engineering disciplines, from 1996-1998. Over the same period, total research funding for the universities provided by the government increased by about 37%.

In taking steps to boost the quality of research, there is also a need to ensure a balance between support for basic and applied research. Although the economic returns from applied research are more immediate, it would be short-sighted to neglect the undertaking of basic research which forms the basis for significant breakthroughs to take place in the long-term. In view of this, the Singapore government, while encouraging the universities to source for research funding from industry, also provides funding support for both basic and applied research.

The ability to extend the frontiers of knowledge through research and development is but the first step. While universities have not always been concerned with the application of this knowledge to wealth-generating economic activity, they cannot afford to continue to concern themselves only with intellectual pursuits. One reason is simple pragmatism. Government funding for university education will never be sufficient to meet all areas of interest, and in

many economies, funding has suffered due to other national priorities. Universities which do not choose to exploit the wealth of ideas which they have generated are letting a golden opportunity slip by. The second reason is more fundamental. With the move to a knowledge economy, universities are now part of the whole value generating chain of the economy.

The time has now come to strengthen the role of the universities as engines of innovation and entrepreneurship. In particular, universities with substantial science and technology (S&T) based teaching and research staff and students constitute an important source of potential technological enterpreneurs, or technopreneurs, as well as S&T ideas and research.
A mark of a university that is successful in fulfilling this role is its ability to generate high-tech spin-off companies and to nurture graduates who can create their own jobs, and not merely fill job vacancies created by foreign investment.

Singapore's universities are taking steps to position themselves for the new economy. They have put in place programmes to strengthen the focus on technopreneurship in their education and research activities, for example, by broadening the engineering curriculum to include some business, management and technopreneurship modules. The universities are also actively engaged in entrepreneurship-related activities, such as participating in business plan competitions and setting up entrepreneurs' clubs.

CONTINUING EDUCATION AND TRAINING

The third key area is that of continuing education and training. With rapid change and knowledge expansion, universities will find it increasingly difficult to sustain their influence unless they continue to be part of the lives of their graduates. Universities should reach out to their alumni, not simply for fund-raising purposes, but so that they can be a part of the continuous investment in the intellectual capital of their alumni.
Only by playing their rightful role in the continuing education of their graduates will universities continue to stay relevant.

This will require the universities to re-think their relationship with their community of current students and alumni. The relationship may have to shift from an intensive 3 to 4 years of interaction to one of life-long interaction,

comprising short durations of encounter beyond the undergraduate or postgraduate phases. Universities may have to think of ways to draw each graduating class back to the university for continuing education over the subsequent 50 years. The reciprocal benefits of continuing education for the university will be that many of these graduates will return for refresher courses more mature and full of new ideas which can in turn spark off new ideas for professors.

Going into continuing education and training in a big way is a daunting challenge. While technology can help, for example in facilitating distance education, many issues such as funding and the exact form of continuing education have yet to be worked out. There is scope to learn how different countries are rising to the challenge.

A NATIONAL STRATEGIC ROLE FOR UNIVERSITIES

To sum up, universities need to shake off their "ivory tower" image and move towards the centre of progress and change in society.
Universities play a strategic role in developing a knowledge economy.
Building a high quality and vibrant university sector will attract and retain the intellectual capital that will provide the “soft infrastructure” on which a knowledge economy will thrive.

Change will not come easily. Beyond the "hardware", change must come from within. University leaders and staff themselves must see it as their mission to position their institutions at the centre of national life.
Unless university leaders and staff are convinced, any change will not be sustainable.

In Singapore, our two state universities have always been willing to re-invent themselves to stay relevant. Even then, a little competition to spur change does not hurt. When we had the opportunity to look at expansion of the university sector in the last few years, we decided to make a key strategic shift. Instead of starting a third state university in the same mould as the two existing state universities, we decided to start a brand new private university.
This new university, the Singapore Management University (SMU), is starting with a clean slate and can adopt the best practices of world-class universities in

areas such as university governance, staff recruitment, management and compensation. It also has the flexibility to experiment with innovative approaches to teaching and curriculum design and to determine its own admission criteria.

Even before it has started to admit its first batch of students, SMU has created several "firsts". It has a foreign President, recruited from the University of Pennsylvania's Wharton School with whom SMU has collaborated in designing its curriculum and in research. The fact that the President is female is incidental. Professor Janice Bellace brings with her invaluable experience in running one of the top business schools in the USA.
SMU also recently opened its admission, ahead of NUS and NTU so that it would have the pick of students. I understand that the business schools in NUS and NTU have responded well to the challenge of meeting the competition from the new comer SMU. This is a good development, not just for NUS and NTU but for university education in general.

Beyond SMU, we are also encouraging top foreign universities to come to Singapore, to collaborate with our local institutions, and even to set up their own campuses. These programmes are mainly at the postgraduate level, but their extension to the undergraduate level is not inconceivable in the medium to long term.

CONCLUSION

Universities have a special place in society. They represent the seat of scholarship and learning. They are the repositories of knowledge and wisdom. They are a symbol of the highest ideals of the society and country of which they are a part. Modern-day universities also play a role in more practical matters, like the training of manpower for the economy.

In the future, knowledge creation, application and dissemination will become central to economic development. The social and national role of universities will blend with the economic, creating for the universities a larger role than ever before. Universities will come into their own as the leaders in innovation and harbingers of progress. This is a heavy burden but it is also an exciting challenge.

Universities must re-invent themselves in all fields of endeavours - undergraduate education, postgraduate education and research, and continuing education and training - to play their new roles.

They must create the right environment to direct and channel the talents of their people. I am confident that Chulalongkorn University will grow from strength to strength, and fulfil its destiny as a leader in Thai society and beyond. I wish you the very best in all your endeavours.

Thank you.
