

# **New Empires of Knowledge in East Asia**

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## **Abstract**

The social role of higher education has changed. The global participation rate has doubled in 16 years, driven primarily by social rather than labour market demand, though with a bifurcation between elite and mass provision, and there has been a notable growth and spread of research capacity and World-Class universities beyond the English-speaking world and Western Europe. The most striking changes have been in East Asia, including China, Hong Kong SAR, Taiwan, Korea and Singapore. East Asia, including Japan, has become the third great zone of research and innovation, after North America and Europe. The accelerated development of higher education has been sustained by economic growth, middle class demand and Confucian educational cultivation in the home, and fostered by active states determined to catch-up to the West. An East-West gap in capacity and resources remains, but the number of World-Class universities in East Asia is growing rapidly. Cultural elements that distinguish East Asian higher education will be more important in future. Developments in higher education will be closely affected by synergies between Eastern and Western models of the university and of university/ state/ society relations.

## **Introduction**

I would like to sincerely thank Steven Andrews and Kai-Ming Cheng for inviting me to share this week with you. It is an honour to deliver the Tin Ka Ping Education Fund Distinguished Lecture and I honour members of Tin Ka's family who are with us today. It is delightful to return to HKU, where the intellectual climate is so invigorating, and China, UK and North America all seem to be close at hand. Hong Kong is unique, and brilliant. It also has one of the best-designed higher education systems in the world. In this small space bristling with skyscrapers, six institutions figure in the research rankings.

## **Empires of Knowledge in East Asia**

It is a good time to talk about higher education. The sector is undergoing an extraordinary transformation at world level. Here I am not referring to MOOCs, though that is an important development. I am not talking about the growth of private education, or student tuition, in some countries. These are important in some countries, and as an international agency model for emerging systems, but are not really uniform patterns, though we in the English-speaking countries pretend that they are. Nor am I talking about the adoption of business models

and accountability systems, which *are* almost uniform. I am talking about the larger social changes in learning, credentialing and research.

In the last generation worldwide participation in tertiary education has multiplied by nearly three times. The economic and political role of science has grown. There are indigenous research systems and World-Class Universities in many more countries. Global development in higher education no longer automatically means 'Americanisation', though US universities are still the strongest in the world. The map of knowledge power is becoming more plural. New Knowledge Empires are emerging in Latin America, the Middle East, Eastern Europe, and in Asia.

The changes are most remarkable in East Asia. Here the great transformation of higher education and research is part of, and contributes to, the global rise of the nations shaped in the traditions of the Warring States, Qin, Han and Tang, nations that have also responded so effectively to the challenges of modernization. When I say 'East Asia' I mean the Post-Confucian systems, the higher education systems located in nations and cities shaped by Chinese civilization, including (if we go back far enough) Korea and via Korea, Japan. For the most part that means 'Northeast Asia', but Singapore is in the Post-Confucian group. So I will use the shorthand 'East Asia'.

### **Gross Tertiary Enrolment Ratio 1995/2011**

Let's start with global tendencies to understand East Asia in context. There are two major tendencies to be discussed. The first is the growth of participation. UNESCO Institute for Statistics tells us that in the 16 years between 1995 and 2011, the Gross Tertiary Education Ratio doubled, from 15 to 30 per cent. Participation in formal post-school education is climbing in all but the poorest nations. Even in South Asia and Sub-Saharan Africa it doubled, though it remains very low in Africa.

### **The overwhelming trend to growth of participation in tertiary education**

Look at the uniform pattern of change in the OECD nations and other European countries. The GTER is well over 50 per cent in North America, Western Europe, Eastern Europe and Russia, and East Asia outside China. It seems that once middle-income nations reach a tipping point, participation in upper secondary and tertiary education takes off, there is no natural ceiling, no limit to educability, demand and supply grow together, and keep on growing towards 90 per cent inclusion and beyond. Korea, Taiwan and North America are there already. Consider what near universal participation means. It means more than lifting the floor of possible productivity. For the first time, half of the world's nations are 'high participation societies'. In those societies advanced scientific, technical or social literacy, and advanced labour market credentials, with the mobility they bring, are common to the *majority* of people less than 35 years of age. We do not yet know what new potentials such societies are incubating. Majority higher education spreads agency freedom and confidence across a much larger population. It widens the horizon of possibility. It renders all states more transparent and accountable.

### **Post-Confucian education systems head towards universal participation**

In East Asia all systems except China and Vietnam have a GTER at or above 60 per cent. Singapore and Hong Kong have moved from the old British pattern of binary inclusion/exclusion, to the world model of universalizing participation, expanding sub-degree programs (which preserves a binary model) and/or pumping up the role of the fee-charging private sector, as in Japan and Korea and/or mass participation at sub-degree level. Korea and Taiwan have large vocational second sectors but unlike the typical pattern in the English-speaking world these are high quality and high esteem. As the example of Germany shows, strong manufacturing countries are best placed to sustain high calibre technical-vocational education, in which vocational-technical programs are seen as a positive alternative to academic programs, rather than a second best stream. Strong manufacturing countries can offer technical graduates a broad range of employment opportunities, so that the risks entailed in investing in a tailored program are reduced. With the decision to transform 600 higher education institutions into technical-vocational institutions, and creation of the technical gaokao, which started less than three weeks ago, China has chosen the German path.

### **Regional variation in GTER (%) in China**

My colleague Po Yang at Beida says that in China the national GTER had reached 30 per cent in 2013, though there is pronounced variation by region. In Beijing and Shanghai in 2010 the level was 60 per cent, but 15 per cent in Tibet and 18 per cent in Yunnan. The national target is 40 per cent by 2020.

### **More growth in participation to come**

What are the drivers of ever-increasing participation in education? Accelerated growth in tertiary education rests on economic growth and an expanding middle class, which bring the capacity to support tertiary education through private individual investment and shared public taxation. In the next generation the Asian middle class will multiply by *five times and more*, primarily in China and India but also in Indonesia, Pakistan, Bangladesh and other large nations, exceeding three billion people in 2030. But growth of the economy and the middle class are conditions of the expansion, not explanations. Is it then states that drive participation? Well, governments act as if they determine participation rate, but that is true only in the immediate sense. Governments have become followers. No government, whether in a contestable polity or a single party-state, can afford to ignore the aspirations of middle class families for educational opportunities. The real question is, what drives popular aspirations for education everywhere in the world?

### **Social demand or economic demand for higher education?**

Is it economic pull—is participation driven by growth in skilled labour in modernizing economies, facilitated by governments the want more investment in human capital? That's the conventional narrative. I do not think so. Human capital theory provides a plausible metaphor and a policy rationale rather than a social scientific explanation for educational growth. The idea that the structure of educational output can or should be matched to the structure of work and occupations makes little sense in the real world. This is not how labour markets

work, and it is not how credentials are shaped, or are used by either graduates or employers.

While economic demand fosters expansion of student places in fields short of labour at particular times (e.g. mining engineers in a mining boom in a mining country); and while in some professions there is a tight fit between training and occupation (e.g. the training of doctors in most countries), the overall relationship between higher education and demand for labour appears incoherent. Consider:

- Across the world, *many* graduates do not work in fields in which they are trained, and many positions that require specific training are filled by graduates from fields other than that of the designated occupation. That is how labour markets work. At the point of job selection, employers take the most desired candidate. Specialist training is only one of the factors at play.
- In any case, much graduate labour—perhaps most graduate labour—is essentially generic. This includes not only most of business studies, the arts/humanities, the humanistic social sciences, the physical and life sciences, but also—in some countries—the phenomenon of many law or engineering graduates working outside the professional field. For example Korea (where a third of graduates are engineers), Russia, Germany, Finland in engineering, Australia in law.
- The trend to expansion of the relative weight of high-skill ('graduate') jobs is less clear-cut than the trend to the expansion of graduate numbers. Phenomena such as credentialism, signalling behaviour and graduates working in what were once seen as non-graduate jobs seem to be at least as prominent as the expansion of high-skill work. Over time the growth of participation is associated with the movement of graduate labour across all industries and down the status ladder so that graduate labour becomes the norm.

The perennial debate about the education/economy relationship—do we have over-education or skill shortage?— can never be settled. Both claims are based on the false premise that the economy and tertiary education normally fit neatly into each other, and any departure from neat fit is a social and economic pathology. In the long run neither generalization holds empirically. Surplus graduates migrate to erstwhile non-graduate jobs, so 'over-education' vanishes. Particular shortages of specialists can and do occur, given that most people seek generic credentials to maximize flexibility and opportunity, and education facilitates this, but genuine supply gaps tend to become filled over time.

However, while the evidence for economic drivers is patchy and inconsistent, the evidence for social drivers is strong and consistent. Families aspire to higher education both because it is seen to open up opportunities and provide better life prospects, and because it provides social distinction, and personal enrichment in a range of ways. Arguably, self-formation through education has become a core aspect of modern middle class life, like career planning, or investing in a family home, or fashioning a personal identity. And higher education provides favourable conditions and capabilities of these modern

tropes, in all of Anglo-American, Western European, and Post-Confucian societies.

The social aspiration for tertiary education is also driven by fear, fear of social exclusion. When participation expands, the average returns to graduates decline relative to the workforce as a whole. However, the position of those without tertiary education also declines relative to the average. Crucially the rate of return to degrees—the graduate premium—is maintained. When participation approaches majority levels, demand for tertiary education is still powered by the desire for relative social advantage, but it switches from an opportunity to an obligation. A degree becomes a ‘defensive necessity’. Non-participation in post-school education is more than exclusion from the top part of the labour markets. Effectively, it is exclusion from full citizenship. Drop out generates a growing cost.

### **Growth of tertiary participation ahead of GDP per capita, China 1980-2012**

Take the case of China. Data for the 1980-2012 period suggests that there is no *linear* correlation between tertiary participation and national product per head, or any other economic indicator. Though the 1980s were a time of rapid economic growth after the opening up of the economy, participation in tertiary education was locked at 2-3 per cent. Participation in secondary education also stayed down, in fact it fell sharply early in the decade. Improved human capital was not essential for economic growth at that time; and nor did economic growth trigger early pressures for broader participation in tertiary education. Advanced skills are more important now, as the economy moves to higher value add in manufacturing, than they were then.

In the 1990s the GTER trended upwards; and from 1999 onwards there was accelerated take-off. Participation increased much faster than GDP per capita even though GDP was growing rapidly by world standards. The exact timing of this turning point was determined by the state, which needed to foster and fulfill the aspirations of the middle class as an instrument of political order. China’s government decided to grow tertiary education and to invest in infrastructure of both elite and mass HEIs. At the same time there was enough pent up social demand from the growing middle classes, after two decades of economic growth, to fully utilise the new opportunities—and once the expansionary genie was released, once social demand was freed up, the GTER moved ahead of target. And growth has been sustained, despite the recurring cycle of temporary graduate surplus, followed by adjusted expectations and behaviours.

### **The growth of science, 1995-2011**

The second major trend is the spread of scientific capacity. All nations now want capability in science and technology, though not all can yet pay for it. Nations need an indigenous science infrastructure just as they need clean water, stable governance, and a globally viable financial sector. In some but not all nations the drive for science is powered by knowledge-intensive manufacturing, for example in Korea, China and Finland. In all nations it is powered by the spread of technology across the economy, by the strategic importance of industrial innovation, and by state building. Nations now need to be effective participants

in the one-world science system and to do this they must train their own research personnel. The alternative is a position of continuing scientific and technological dependence.

### **51 countries with 1000 science papers p.a.**

The growth in research science has been almost as spectacular as the growth in tertiary participation. National science is yet to spread as widely as mass tertiary education. But national science has moved from being something that only highly developed countries in North America, Europe/UK and Japan could afford, to part of the normal business of established and emerging states. In 1997, there were 40 nations that published over one thousand research papers in the recognized science journals. By 2011, there were 51 such nations.

### **Examples of fast growing science systems**

The new science nations include Croatia, Serbia, Slovenia, Chile, Malaysia, Thailand, Iran and Tunisia. The output of published science grew faster in Iran than in any other country, increasing at a remarkable 25.2 per annum between 1995 and 2011.

### **Investment in Post-Confucian R&D is at similar levels to Western Europe**

But the standout region is of course East Asia. Japanese R&D emerged as a global player between the 1970s and 1990s, and it continues to underpin the manufacturing sector, though university research funding is now marking time, stymied by the weight of national debt in fiscal policy. In China, Korea, Singapore and Taiwan the research takeoff occurred a generation or more after Japan. Korea's investment in R&D in 2011 was 4.03 per cent of GDP, second highest in the world after Israel, well ahead of Finland, the leader in Europe. Japan was at 3.39 per cent. China's investment is rising 0.1 per cent of GDP a year and reached 1.84 per cent in 2011, above the UK.

### **Three main regions of world R&D**

In 2011 the Post-Confucian countries of East Asia (China, Japan, Korea, Taiwan), plus Singapore, invested \$448 billion in R&D, a third of the global total, just below the \$453 billion spent in the United States and Canada. Almost half of this investment was in China, which increased R&D funding by more than 18 per cent a year in real terms, year by year, for the previous ten years. China allocated \$208 billion in 2011, compared to \$429 billion in the United States. Japan had the world's third highest investment. Korea was fifth. East Asia has become the third great region for research and industrial innovation, alongside North America and Western Europe/UK. East Asia channels a higher proportion of national R&D investment into business and industry than does North America and Western Europe.

### **Fast growing Post-Confucian science**

In fact not enough goes to the universities. Even so, published science is increasing almost as quickly as R&D funding. Between 1995 and 2011, the number of journal articles by Chinese people rose by 16.5 per cent a year, and reached almost half the US level. Published papers grew 13.6 per cent a year in

Korea, 9.6 per cent in Singapore, 7.9 per cent in Taiwan, remarkable rates of sustained increase.

### **Rapid improvement in Chemistry in China**

Citation quality is now improving rapidly, at least in the Physical Sciences and Engineering in China, the disciplines that have been the main priorities for national investment in China and in other systems throughout the region. Take Chemistry. US National Science Foundation data show that in the year 2000, China published just 0.6 per cent of the world's papers that were ranked in the top 1 per cent of the field by citation rate. Twelve years later in 2012, China published 16.3 per cent of leading papers, half as many as the US. And its total number of published papers in Chemistry exceeded the US. There are similar patterns in Engineering, Physics, Computing—where China now publishes more top 1 per cent papers than the US—and to a lesser extent in Mathematics. The picture in Biological Sciences and Medicine is much weaker, though the number of Chinese Life Science papers in *Nature* has now begun to climb.

### **Shanghai ranking top 500 universities, Sinic systems, 2005 & 2013**

However, there is still a gap between East Asia and the West, especially the English-speaking countries, and it is most apparent in relation to the measured number and performance of 'World-Class' universities. Shanghai ARWU popularized the term and I look first at its data. ARWU shows that the number of top 500 research universities from mainland China and Taiwan has grown quickly. However, global targets and measured progress are set in terms of the top 200 or top 100, not the top 500.

### **Majority of 'World-Class Universities' still in Anglosphere (how much longer?)**

And here the English-speaking nations are still dominant. There are just five Chinese universities in the ARWU top 200, all in the second 100, and National University of Singapore, National Taiwan U and Seoul National are also confined to the second 100. Regional stars like HKUST and Postech are too small to figure in the ARWU, though the size factor helps the large Japanese universities from the Imperial group. Perhaps the main problem facing Asian universities in the Jiao Tong, though, is the paucity of Nobel Prizes. Nobel prizes are open to politicking, introducing unnecessary noise into the comparison. So does the use of arbitrary weightings in the multi-indicator league tables. The more reliable data set is the ranking by Leiden University in the Netherlands, which offers a number of different single indicator rankings. The Leiden research ranking is the most accurate measure of the global position of science universities in East Asia. I will now identify the leading universities listed for each system.

### **World-Class Universities: Singapore**

Singapore's two main research universities have levels of performance akin to a top Swiss or British institution. NUS is in the world top 30 on the volume of science. The last column shows that it produces almost two thirds as many high citation papers as Cambridge, and is 30<sup>th</sup> in the world on that measure. This is a useful measure of the firepower of a research university—it captures the 'quantity of quality'. On the pure quality measure, the proportion of papers in the top 10 per cent in their field, Asian universities do less well. The United States functions as a very large national research system that tends to cite itself and it dominates citation quality averages. NUS is only 112<sup>th</sup> in the world in the



proportion of papers in the top 10 per cent in the field. Even so NUS is second research university Asia on this measure. Nanyang is now number one. Bravo Singapore.

### **World-Class Universities: mainland China**

China has two broad types of research university—large institutions with wide spread across the fields of research and high paper volumes, but weak average citation rates, such as Shanghai Jiao Tong, and smaller universities that specialize in high quality S&T research and have better citation rates, like Nankai and the Academy university, the University of Science and Technology. Tsingua, and to a lesser extent Beida and Fudan, combine large size with citation performance above the norm. The largest university in volume terms, Zhejiang, is the world's ninth largest producer of published science.

### **Relatively high citation rates, China**

This table lists the Chinese universities with more than 10 per cent of their papers in the top one tenth in the field. Given the language barrier these institutions must be counted as strong performers. In the next generation some of them could really take off.

### **World-Class Universities: Hong Kong SAR**

I have listed six Hong Kong universities. The Baptist University is weaker than the others, but its average citation rate compares well with other small Asian universities. The SAR universities face less difficulty with English language publishing, compared to Mainlanders. Like the Singapore universities they have fine citation rates in the Asian context, especially HK UST and HKU. The City University is also in the world top 200 on citation quality. Balanced development allows a number of institutions to flourish, though none are in the world top 100 on size, and all are constrained by the low allocation to R&D in Hong Kong. Hong Kong's research funding as a share of GDP is about 40 per the level of the Mainland. Perhaps that is the only factor holding Hong Kong back from Singapore levels of performance. Certainly, the talent is here.

### **World-Class Universities: Taiwan**

National Taiwan University is large, 41<sup>st</sup> in the world on paper volume, is exceptionally strong in engineering, especially electronics, and produces many high citation papers, though its overall citation rate is disappointing, as is the case for other Taiwan universities.

### **World-Class Universities: Korea**

In Korea, Seoul National is larger than NTU and NUS, 11<sup>th</sup> in the world on paper volume, though 520<sup>th</sup> on citation rate. The pattern in Taiwan is replicated in Korea—low citation rates—except for the research specialists KAIST and Postech (Pohang), and the Women's University. Generally the cut off point for inclusions in these tables was 3000 papers over the 2009-2012 period (higher in China) but I have varied this to include small high citation institutions, such as Postech.

### **World-Class Universities: Japan**

Finally, Japan. Six universities in the world top 100 on paper volume, with Tokyo a colossal fourth on that measure. But Tokyo is only 342<sup>nd</sup> on the prevalence of papers in the top 10 per cent by citation rate. Despite low average citation rates, in part because in much of the university sector Japanese enjoys more prestige as an academic language than English, the sheer size of several of the Imperial group universities ensures a high volume of top 10 per cent papers. On this measure Tokyo produces almost as much top tier world science as NUS.

### **Asian HEIs, top 10% papers, 2009-2012**

The last table provides the Marginson League Table for Asia—a summary ranking of Asian universities based on the number of high citation papers produced, the 'quantity of quality'. Half of the top 30 universities are from mainland China and four from Hong Kong. This single indicator provides a more accurate summary of the comparative research strength of universities in the region than the ARWU list. According to this measure there are 28 Asian universities in the world top 200, compared to 19 in the Shanghai ranking.

That is still only 14 per cent of the world top 200 list, but that proportion will increase sharply in future years. Nothing is more certain. There are lags between investment in capacity, publication, and citation recognition. The output growth and improvement in citation quality of the last decade largely reflects late 1990s-early 2000s investments, quickened by incentives to publish in English. Recent and current investments are still in the pipeline. It is an awesome prospect, particularly in China and Korea. There's still a long way to go, the top American universities are in a different league, and the US will continue to house the largest number of top 50 universities for the foreseeable future, but the goal of catch up to the West is now in sight. It is more realistic than it was. And it is clear that in future a large proportion of global knowledge will be generated in East Asia.

### **The state and accelerated growth: Journal papers, China 1995-2011**

How have the East Asian systems achieved such progress in a short time? Though economic growth and the growing middle class are crucial these are not sufficient conditions. From time to time, other nations have shared those conditions without launching educational takeoff. We can identify two indigenous elements: the capabilities of the distinctive East Asian state, and the Confucian educational family

The development of higher education and science is powered by a fierce drive for modernization fostered by comprehensive states in the distinctive Sinic tradition, the Qin and Han tradition, which set targets, invest real resources, demand international benchmarking, particularly with American universities, and monitor improvement. In this region the quality of all state machines is high, except in Vietnam, where the takeoff has not occurred. Unlike the state in the United States, the East Asian state attracts the highest quality graduates. It enjoys an unmatched social prestige and it has a considerable capacity to mobilise national effort for the achievement of common goals (though perhaps this capacity is now faltering in Japan). Consider the way in which China moved

decisively to create a second vocational-technical sector in higher education, Consider the takeoff of science production in China, which moved ahead of the rate of economic growth after the late 1990s. The Korean state has likewise demonstrated a remarkable capacity to secure managed improvements, for example in the school system. Although there are many differences between the individual East Asian countries, the comprehensive Sinic state operates in a similar manner in education policy, whether in contestable polities or in single party-states.

### **PISA performance at top and bottom**

As the PISA results show, Confucian educational cultivation and shadow schooling in the home generate a consistent flow of high quality students and junior faculty. The East Asian systems draw on a long tradition and a well of social commitment to learning that is deeper and wider than anywhere else, except perhaps Finland. Though East Asian societies, unlike Nordic societies, are not particularly egalitarian in terms of gini coefficients, East Asian higher education systems are highly stratified, and the social elite dominates in the leading institutions, there is strong PISA performance in the bottom group of students as well as in the top group. In East Asia there is a relatively modest tradeoff between educational excellence and social equity. It is something that Anglo-American societies have yet to achieve.

### **A distinctive East Asian university?**

The rising East Asian research universities are a hybrid of Anglo-American science, together with indigenous educational culture, and Sinic state-powered modernization. Will a distinctively East Asian kind of higher education emerge, grounded more in Confucian self-formation and the distinctively Sinic approach to academic freedom, with its emphasis on the social and scholarly responsibilities of professors? Perhaps. As East Asian nations become more confident at home and globally active abroad their distinctive cultural roots are likely to become more important. I cannot foresee what might develop, but what is clear is that at global level the two most influential influences in the future of higher education will be the two zones where higher education will be strongest, the English-speaking countries (especially the United States) and China, Korea and other parts of East Asia.

Western European countries will also make distinctive contributions. For example the Nordic countries practice mass educational provision at a higher level of quality than do other nations, the Dutch system is highly inclusive in its social mix, and Germany is on the brink of a significant uplift in its research universities. However, the Nordic model cannot be readily replicated in the absence of its high tax/high spend underlay, and there is an increasing degree of convergence between English speaking countries and central Europe.

### **A global conversation**

Arguably, the central conversation about the future of higher education is the conversation between the changing, modernising Sinic tradition, the Post-Confucian world, and changing, evolving English-speaking tradition. This is emblematic of the larger encounter that will increasingly take place, between the

different Anglo and Sinic traditions in governance, state, and civil society. Both kinds of society are grappling with similar questions but in different ways. How to liberalise the civic and political space to make room for popular agency in politics—the kind of strong agency already expressed in economic and cultural life—without undermining the social order? China grapples with the problem of liberalizing the party-state from within, and creating and maintaining a stable organic civil society, while accommodating dissent on an ongoing basis. Civil society and free contestation of ideas had their moments in China but were never a permanent part of the polity. It is difficult to take them in. The US grapples with a political system in which money controls politics, ordinary participation has become meaningless; and contestability as a legitimating device breaks down when the party system provides no meaningful policy alternatives on key issues that affect people. And in American higher education, long part of the bedrock of American society, it is now all about private benefits, and the idea of public good in higher education has been hollowed out. This also points to the larger weakness in the limited liberal state in this period. How can the state in UK and USA mobilise collective national effort to address emerging problems like energy and climate change? English-speaking polities are unable to deal with this. They are at the beck and call of their major corporations, like the energy companies in oil and coal. They have elevated the legal right to trade above the public good. The East Asian state has the better tool box to tackle energy policy, as illustrated by China's shift from coal and oil to gas, nuclear and renewables. In other words, both traditions, both political cultures, have distinctive strengths and weaknesses. If there is to be a stable form of global governance it will probably develop as a hybrid of these traditions. And if there is to be a more integrated and equal global knowledge system, with greater respect for diversity, in place of the homogenizing uni-cultural system that has developed so far, it will probably have to be an East-West hybrid. And to achieve such a hybrid, all the players will need to change.

The East Asian societies have learned selectively from Western and especially English-speaking higher education. I believe that in future the West will find that it has much to learn from East Asia. In higher education, too, both traditions have their strengths and weaknesses. And there are both similarities and differences between them.

In both regions higher education and its graduates face endemic and unresolvable problems of graduate unemployment, and all societies will continue to sustain the endemic unresolved debate between liberal and generic higher education, versus vocational and specific higher education. The answer of course is 'both' but surprisingly few students pursue programs that contain generic *and* specific diplomas.

In both world regions, elite universities are travelling well but are in continuing danger of losing touch with their broad social mission. In both regions, providing mass education of adequate quality is becoming increasingly problematic, amid the plethora of under-funded public institutions, small private institutions, for-profits, marketing-created credentials, cross-border forays, and online and mixed mode variants on offer. Some forms of participation are so attenuated as

to scarcely merit the title 'education' at all. There is little or no learning and the credentials have negligible value.

In both world regions, there is a widening gap between elite and mass higher education within universal systems. This gap plays into the growing inequalities of income and wealth in most nations. This is a key weakness in contemporary societies and may fragment them decisively. And we must acknowledge that higher education is complicit in this growing inequality, even though it is not the main driver. In many countries, the main indicator of inequality in education has shifted from participation per se—whether the student enrolls or not—to the question of 'participation in what?' Which institution? Which field of study? Though as we have seen, non-participation has become a greater social disadvantage than it was before. Both dimensions of equality, inclusion versus exclusion, and equal value versus stratification, need to be part of the policy debate.

There are also important differences between higher education East and West and this is where we have much to learn from each other, if we can do so on the basis of equality of respect. These differences go to the nature of the individual in education, to the conduct of society and state in education, and to global activity and relationships.

First, at the core of higher education in each tradition is a distinct process of self-formation. As you know, the English-speaking countries, immersed in the John Locke/ Adam Smith idea the tradition of the limited liberal state, emphasise negative freedom—freedom of the individual from coercion by the state—and tend to play down the social situatedness of the individual. Thus Anthony Giddens argues that the modern individual has no given identity but must continually remake identity through reflexive activity. I think this position is widely felt. People use higher education to change themselves and their conditions of life. They want to become something new, through enrolment and perhaps through study, even though they do not always know what this will be. Sometimes they just want to open the possibilities. This approach to higher education parallels other cultural notions of people as self-determining individuals, including the person as fashioning their own career; the person as decision-making consumer; the person as mobile individual who can live in many places; fashion, body management and visual image; the emphasis on personal cultural identity, 'who I am'; social networking and its positioning of students as individual self-celebrities for a day, constantly changing their 'public image'. Confucian notions of self-formation are different. They have a stronger moral and ethical dimension, and place priority on key social relations. This provides a balance to the high individualism of the Anglo-American countries, though at one extreme it can also deaden individual agency. The two approaches have different implications for values in the curriculum, modes of pedagogy, and the public good role of the sector.

Second, the differences in the relationship between higher education and the state have profound implications. Perhaps Hong Kong will be the testing ground for the potential to blend the two approaches. In East Asia the state has a

comprehensive responsibility for social order and prosperity and so it intervenes at will, not all of the time but selectively in response to short-term problems and long-term needs. Thus once higher education and science became government priorities, states acted decisively and in a sustained manner. The capacity for long-term vision is particularly valuable and contrasts with state administration in the English-speaking world. The downside, of course, is that the East Asian state cannot seem to stop itself from interfering in important matters like research. It is difficult for East Asian states to devolve decisions to scientific communities on a consistent basis, difficult to let go, and this can stymie science. In the English-speaking world the central concern is always the boundary tension between state and market, state and civil society, government and university. Issues of autonomy are always central. So while there is frequent interference with university autonomy and academic freedom, and they are always being negotiated, the two qualities start from a stronger position than in East Asia. The downsides are that the political costs of an active policy are so great that governments tend to withdraw from policies designed to lift the long run capacity of the sector; and government control is exercised indirectly, through rules, funding formulae and the settings for competition, so the effects of policy are removed from scrutiny.

Third and finally, East Asian and English-speaking universities pursue different kinds of global agendas. The Anglo-American institutions move more readily into global positioning and activity in all areas. This is not so much deeply cultural, as the outcome of their imperial domination in the last three hundred years—they have the resources and the confidence for global forays—coupled with the related fact that English is the one global language of common use. Thus the English-speaking countries are far and away the leading attractors of international students. Mobility patterns are becoming more plural. In terms of inward student movement China is now the third largest provider of international education after the US and the UK. Nevertheless, as my colleague at Beida Jiang Kai points out, only about a third of the inward movement into China takes the form of degree enrolments and as yet less than ten per cent of international students in China study at graduate level. Students who go to the English speaking countries stay longer and many migrate. These patterns will change but it is not yet clear whether Chinese national language will become a global language of common use.

Nevertheless, there are signs of a more active approach, as in the Confucius Institutes, the founding of a Shanghai Jiao Tong campus offshore in Singapore, and the longer pattern of foreign aid for education with China in Africa and Japan and Korea in Southeast Asia. The advent of the ARWU ranking was also important—the first distinctively Chinese structuring of global systems in higher education and science. The higher education environment will change when China, Korea and Taiwan move from an international strategy to a global strategy, contributing distinctive cultural contents to the world conversation, and becoming just as engaged offshore with foreign partners as through onshore partnerships at home. Japan has found it difficult to move to a global approach in education, despite its impressive achievements in research, but Singapore has shown that it can be done. East Asia now has the demography, the dynamism,

and increasing, the wealth and the scientific infrastructure, to make a seminal global contribution.

Thank you kindly for sharing this lecture with me. I wish you all the best in your work and especially your international work!