



Higher Education Policy Institute (HEPI)

Annual Lecture

by

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Thirty-one years ago I came to this country as a doctoral student and little did I know then that I would devote a substantial part of my professional life to the study of Higher Education and that I would have the pleasure and the honour to be invited to deliver the Annual HEPI Lecture. I would like to thank sincerely Bahram for inviting me. At the same time, last night, when I looked at the list of participants, I got quite nervous realising that there were so many distinguished scholars and that maybe I wouldn't have much to tell you that you wouldn't know. So I decided that I desperately needed some help. I left my hotel last night and wandered around a little bit and I thankfully came across this lady who invited me to sit down and she asked me first, "What is it you want to know about – the state of your personal finances, or –" I said, "No, no, no. Please help me find out about the future of Higher Education."

And this is what she told me.

In the future, it will be compulsory to go to university. Universities will recruit their new students on Myspace and Facebook, and in countries where it's difficult to attract engineering students to study Engineering, they will go straight to kindergarten to start motivating them. When they enter university, new students will get a free laptop, a Blackberry, an iPad and a Kindle with all their text books.

If you need financial aid, you will participate in an auction on eBay to get your scholarship. In the future students will commonly be enrolled in two or three universities at the same time studying towards a common degree.

No more emails in the future because it's too slow. We'll be commonly using only Myspace, Buzz, Twitter, Facebook, Hi-5, Blogger, Lifespace, etc. Students will take open internet exams and the validity of their degree will be only five years.

And bad news for those of you who are still lecturers – you will have to re-do your courses every three years. But don't worry, it will be much easier in the future because you'll be giving only five minute lectures. Most courses will be online and if a student needs some help, he or she will call an 0800 number to Bangalore for online tutoring.

In the future it will be cheaper to build universities because we will have no more physical libraries or labs; it will be all i-labs and e-libraries. Universities will not recruit any professor who has not studied overseas. And once your graduates leave university, if they don't find a proper job within six months, you will have to reimburse them the costs of their studies.

Bad news on the financial front, of course. Public universities will receive only 10% of their income from governments, but not to worry because you will be so successful



in raising money that you will be telling the philanthropists out there, “That’s enough for this year; come back next year.”

Vice Chancellors will be earning £1,000,000 a year. However, your salary will be indexed to your ranking, going up and down with your ranking result.

In countries where English is not a native language, parents will have surgery performed on their young children to cut the little skin that links the tongue to the mouth to improve their English language pronunciation. Obviously my parents forgot to do that to me!

And lastly, in the future, those of you who are proud graduates with an MBA, forget about it, because in the future the ‘in’ degree will be the MFA, the Master in Fine Arts, because creativity will be so important.

Now you think that I’ve been telling you science fiction stories. Believe me, each and every example that I gave you is something I came across throughout my travels all over the world and I believe that these examples are symptomatic of a revolution that Higher Education is going through. And so the question before us is to ask ourselves whether our Higher Education systems are ready to face this revolution. To start answering this question with you tonight, I have divided my lecture into three parts. First, I want to remind ourselves about the importance of knowledge; then I want to see what it means in terms of new education needs and practices and, lastly, ask a few questions about the implications for the United Kingdom.

So let me start with the importance of knowledge. A few years back, colleagues of mine at the World Bank looked at two countries that used to be at the same level of economic development in the early ‘60s – South Korea and Brazil. But look at the difference today. South Korea is doing so well and Brazil is so behind. They tried to do some adjustments to compensate for differences in investment in both physical and human capital and that makes it slightly better for Brazil. But still we have this huge gap which they attribute to the way South Korea, much more than Brazil, has harnessed knowledge for its development. And indeed some of you may be driving a Kia car or Hyundai, you maybe have a Samsung cellular phone or watch TV at home on an LG screen, but how many Brazilian products do you commonly have?

And it’s interesting to look at the difference in human capital developments as the following graph shows. This is the education attainment of the adult population. If you look, for example, at the bottom – 1960 – in red you have the proportion of adults who had completed only primary education, in blue we have those who had secondary education only, and in green those who had achieved tertiary education. I think it’s interesting to see that, back in the ‘60s, the education structure of the labour force was pretty similar in both countries with the majority of people having only primary education. But if we fast forward to 2010, look at the change. Brazil has improved, but we still have a majority of adults with only primary, and then most of the others with only secondary education. But look at Korea, where you have now the majority of adults with secondary or tertiary education.

A few weeks back, the Prime Minister of Ontario travelled to the US and he gave a speech and, at the end of the speech he had the following words: “If you think about the world we live in today, it’s a world where you can borrow your capital, copy your



technology and buy your natural resources. There is only one thing left on which to build your advantage, build a strong economy and society, and that is talent.” That’s the only competitive advantage nowadays.

A few years back there was a commission on the future of skills in the US and it looked at the very generous distribution of labour that they proposed. The US will focus on creative work, that’s R&D, design, marketing and sales, managing the global supplies chain and, for the rest of the world, we will be confined to routine work, whether we do it ourselves or whether we use machines to do that. Do you like that vision of the world? I don’t.

Let me show you another story to illustrate the importance of knowledge. In northern Finland, 500 km north of Helsinki, there was a small city called Oulu in the middle of the forest. The main company there used to cut trees, making paper and cardboard. But, back in the ‘70s, the CEO had started to get worried about the future of his industry and so he challenged the Government – ‘If you established a polytechnic university in Oulu, I commit to investing in modern labs and to bring more private sector investors.’ You can imagine that professors in Helsinki were not so keen to move to this small city in the middle of nowhere, but the Government took up the challenge and established a university in Oulu and today, if you Google, you will see a giant website – the City of Oulu and the University of Oulu – because their development has been so closely interlinked. Now, which company had the CEO with a far-fetching vision? You may have heard about them – they are called Nokia. They moved from being a company producing paper and cardboard and cables to becoming a world leader in electronics, contributing 20% of Finland’s balance of payments.

I come from Morocco, at the crossroads of the Mediterranean Sea and the Atlantic Ocean, and we have lots of wind, and I remember these small windmills all over the countryside when I grew up there, but we haven’t risen to the task of trying to use our wind as other countries have done, where you have wind factories or wind farms. Now it’s interesting if you look at who are the leaders in producing windmills today. It’s not the US, it’s not the UK, it’s Denmark with Vestas, the leading company. Actually they produce now 20% of their energy supply out of the wind. And who is coming up big time? India and China and Spain.

And it’s not only using knowledge for economic growth, but also for resolving daily problems, especially in developing countries. Look at this magic new invention called the LifeStraw which allows you to transform dangerous water into potable water immediately. Or the Q-Drum which transforms the task of taking water from the well to the village into almost a game. And it’s also about harnessing knowledge for safety. Progress in seismology, volcanology, climatology doesn’t mean that we can prevent natural catastrophes, but certainly we can be better prepared.

Unfortunately, we don’t always use our knowledge very well. I travelled back to Haiti last June and I was horrified to see the consequences of the earthquake, but what made me even angrier was to reflect on a few facts. The earthquake in Haiti was 7.0 on the Richter scale. Back in 1989 there was a 7.0 earthquake in San Francisco Bay – 69 dead people. But in Haiti 200,000 deaths. And if you remember a month later in Chile there was an even stronger earthquake – 8.8 on the Richter scale, but only 575 dead. 575/200,000 – what explains the difference? Is it just bad luck? No. I have



worked a lot in both countries. In Chile you have proper construction standards and they are enforced. In Haiti you have no standards, and even if they existed, they would not be enforced. We could have the same discussion about the tsunami. In Asia they learned their lessons about the last tsunami, so they put in the equipment in Indonesia. But, if you remember, two or three months back there was a small tsunami which hit one of the Indonesian islands and again they had 300 dead, and they had the equipment, but it had not been properly maintained.

Lastly, I want to say about knowledge that, in many disciplines, the acceleration in the creation of new knowledge means that what you teach first year university students may have become obsolete by the time they're graduates. So we have to think, 'How do we prepare our youngsters for that? How do we update our knowledge? What does this all mean in terms of new education needs and practises?' Well, the first thing is that we need new skills. You remember when intelligent machines became more prevalent? When we started using more robots, we started to wonder whether these machines were now going to displace us progressively as human beings. And there is a very interesting book that you may have read by two professors in the US – Mumane and Levy respectively from Harvard and MIT – who tried to analyse what happened in US firms over the past 30 years, looking at what happened to the tasks that are performed, and there is good news and bad news. The bad news is that, indeed, many tasks have been taken over by the machines; not only routine, manual tasks, but even routine cognitive tasks where you can programme the machine saying, "If A happens, you have to do B. If C happens, you have to do D." Even some non-routine manual tasks.

But there are two types of new tasks that, thank God, are still only performed by human beings. One is what they call expert thinking; the other one is complex communication. What is expert thinking? It's the ability to look at patterns, complex patterns, to make sense of them and to propose a course of action. I think, perhaps, the best way to illustrate that is to look at the role of a medical doctor. Medicine has changed a lot, much more than education, and we even use robots. Here we have a robot that allows you to do telemedicine. The doctor is 2,000km away and can interview a patient at a distance. However, we have many more sophisticated machines to do blood tests, we can do CAT scans, MRI, etc., but it's still the human medical doctor who looks at all the facts and who puts them together, makes sense of them and says, "This is what you have and this is the course of action that I recommend to cure the patient."

Now, are we doing a good job preparing our youngsters for that? You may have heard about PISA which tests 15 year olds in secondary schools and looks at reasoning abilities, the abilities to solve problems, and the results, even in industrial countries. It's on a scale up to 6. If you have less than 1 or 1, you have not mastered the basic skills and you have failed completely. Even in Ireland, almost 20% of the youngsters are not up to par, and in developing countries it's catastrophic levels of students who are not well prepared. These are the results for 2006, and even for the latest results it's not much better. If you look at below or at level 1, even in Finland, the top performer, you have 8% of the youngsters who are not doing well. Ireland's close to 20%, then you go to Indonesia – 75%. So we are not doing a good job preparing our youngsters.



How about communication skills, the ability to persuade others, to work with people at a distance, people who are not from the same culture, and to convince them about complex issues? Well, we don't have much evidence on what's going on, but let me turn to our cousins, the dolphins, for some help: "Although humans make sounds with their mouth, and occasionally look at each other, there is no solid evidence that they actually communicate amongst themselves." And, indeed, if we read the newspaper or turn on the TV, we see images of civil wars, poverty and inequality, etc., which makes us doubt our ability to prepare our youngsters well for good communication.

What are some of the other competencies? A few months back, a friend of mine interviewed the Head of Samsung cellular phones, asking him, "What are the technical skills that you are looking for in your new graduates?" And he said, "Oh, I'm not worried about engineers or technicians – what I want are designers." Because if you think about it, nowadays when we buy a cellular phone, or especially when our children buy cellular phones, it's not about the technical sophistication of the device, it's about the look. And that's why we now have a Prada cellular phone, a luxury Razer with lizard skin, Giorgio Armani Samsung mobile and, for those of you who have teenage daughters, we recognise the fashion phones that are popular right now. And look at this elegant lady who has a matching bag – actually it's not a handbag, it's a matching HD laptop. Now gentlemen don't worry, don't be envious. We also have the Ferrari laptop – how is that? Oh, you don't like Ferrari? No problem. How about a Lamborghini laptop? And please, next time you buy a helicopter, be sure to get the Versace version – much cooler. Some of you may recognise the exciting Dell laptop – well even Dell now is getting some colour and an artistic touch to compete with some other brand which I'm not allowed to name today, because they are not a sponsor, right?

So it's all about creativity, and are we preparing our youngsters well? What does it mean to teach creativity, to allow our young students to invent, to experiment, to think out of the box. "Wasn't that allowed? Nobody told me." To take chances, to break the rules, to make mistakes and to have fun as you do that. Believe me, in most classrooms I've seen, that's not what is going on.

The beauty of the knowledge economy is that anybody, any country, can say, "This is the way I want to function." You can just tone it down and say, "I will do the creative work and leave the routine work to the others." But to be able to do that, you have to change your education model. If indeed knowledge is becoming so important and knowledge is changing, we need to put ourselves in a life-long learning framework where education will start very early in age and will go on almost forever.

Today's university in most parts of the world looks like a pyramid where most students are high school graduates and then you have the smaller share of postgraduate students. My prediction is that in the future, Higher Education institutions will be star shaped, where the undergraduate students will be just one small part of the picture, and so will graduate students, and you will have increasing emphasis on continuing education and on career change studies. Labour market prediction, in both this country and the US, show that on average young people today will have at least five different jobs over their career. I'm not talking about the same job in five different companies, no – it's five entirely different professions. So they will need to be retrained for these career changes. And of course it will be not only on campus, but also online, so a totally different perspective. Which means that, not



only will we have to continue to learn on a permanent basis, but if our brains are not permanently expandable, so we also need to learn to get rid of obsolete knowledge.

So, we will have to follow totally different pedagogical practices which I would like to illustrate with an anecdote from the life of Professor Einstein who, as you know, used to travel a lot to give lectures. One evening, sitting in the back of his chauffeur driven car, he gave a big sigh. The driver looked in the mirror and said, "What's wrong Professor?" "Oh, I'm so tired of giving these lectures." And the driver said, "How so? It's always the same lecture." Einstein said, "You are right, but don't you realise how complicated and sophisticated it is?" The driver said, "Yes, but it's always the same story you're telling these people." So Einstein said, "Yes, but not anyone could give a lecture about the theory of relativity." And the driver says, "With all due respect Professor, I've heard your lectures so often, I think I could do it." So Einstein said, "OK, well, you're going to do it." Einstein used to be very casual, so they changed clothes, the driver put on Einstein's clothes. They get to the university, the real Einstein sits at the back, the driver comes to the podium and obviously he had a good memory because he gave quite a decent explanation about the theory of relativity. At the end of the lecture people start applauding and you can imagine that Einstein at the back is quite annoyed and the moderator says, "Professor, can we ask questions?" So Einstein says, "Aha, now, what do you do my friend?" But the driver doesn't hesitate and says, "Sure, go ahead." You know what? People always ask the same questions. So the driver does a good job answering the questions. Einstein at the back is very, very annoyed. Then, coming to the end, the moderator said, "OK. One last question." A gentleman stands up in the middle and says, "Professor Einstein, this is all very well, but you've told us only about your past work. What's the next step in your scientific investigations?" And now, for the first time, Einstein relaxes at the back. "Now, my friend, I've got you." But the driver doesn't blink, looks at the gentleman and says, "Sir, I don't mean any offence, but in my long career as a professor I've heard many stupid questions and yours is so dumb that I'm going to ask my driver at the back to answer it."

So what does it mean in terms of new pedagogical approaches? That we need to change from a university that focuses on the needs and pleasures and desires of the professor, and focuses on the needs of the learner. We have to harness new and varied modalities of learning that are more interactive, that are more collaborative.

In the US, the fastest two universities in terms of enrolment growth are the for-profit University of Phoenix which is mostly online, and the University of Maryland, University College, which is online. They have 150,000 university students. And this is the kind of ad they have in the newspaper: "Welcome to class. Sit anywhere. As long as you have an internet connection, you can study when you want and where you want." Duke University has a Nursing College on Second Life. It's a virtual faculty of nursing. INSEAD, one of the top business studies schools in Europe, which has a campus in Fontainebleau, France, and a campus in Singapore, has a virtual campus so the students can study together in this virtual classroom.

This is not only virtual. MIT has a Technology Enhanced Active Learning classroom. This is a physics classroom. No teaching anymore. The students study the text book by themselves. Every night before they meet in the study room, they have to go online and do a quiz to show that they have done their readings, and then they come to the session and it's all group work and it's all experimentation to see how they can



apply the knowledge. The Professor doesn't teach anymore, he's just a facilitator answering questions, guiding, facilitating the session.

I've always asked myself, watching my youngest son not doing so well at school because he said that he was bored, but then spending ten hours every night on the internet playing games. Why would we not apply the pedagogy of games into our teaching? Well now Carnegie Mellon has come up with the answer. They have a chemistry teaching game called Mixed Reception. So we have a cocktail party, as we will have after this session, and then one of the guests drops dead, as hopefully will not happen after this session. And the exercise is to learn the necessary chemistry knowledge, in order to find out whether it was just food poisoning or murder à la Agatha Christie.

In Korea we see teaching of English by robot – the kids prefer the robot because they say, “The robot never screams at us, never makes fun of us,” and they are learning in a much easier way. And then there is Martha, this Norwegian medical robot who can simulate many things. This is for nursing practice, so if you try to give her an injection and you do it properly she will thank you profusely, and if you don't, if you hurt her, she will tell you in no uncertain terms how she feels about you. I cannot repeat her language here. As Peter Knight had the vision back in 1994, “In the early 21st Century, people will be able to study what they want, when they want, where they want, and in the language they prefer, electronically.”

So, what does this all mean for your country and other countries in the world? Are these challenges or opportunities good or not; allowed or not?

I want to talk about four topics to finish. Quality and Relevance, Equity, Funding and Flexibility. But allow me to take a one minute pause because I have a captive audience and I have a property to sell and, as you know in the US the housing market has been a disaster – perhaps not as bad as Ireland, but it's not good – so I have this charming and peaceful residence away from neighbours with a wonderful view of the sea, a grand period staircase and lots and lots of light and only £50,000. Any takers? Come on, come on. Do you need additional information? OK, you are very demanding, but here is a picture. [Shows picture] I didn't lie, did I? It's charming, it's peaceful, no neighbours, wonderful view of the sea, a grand period staircase inside, lots and lots of light, and yet I did mislead you, or was trying to, right? In many parts of the world, quality is not offered by Higher Education institutions. Sometimes you have a fantastic advertisement, but when you look at what happens within these situations, we really have to make sure that programmes, not only in terms of the professional skills that are offered, but also in terms of the new soft competencies that are needed for the knowledge economy, are there in our institutions.

There is a whole new debate in the US and other parts of the world about student learning outcomes - moving away from judging the quality of an institution by looking at inputs, by the qualifications of the professors, by looking at the curriculum, and towards looking at what students actually learn, and challenging the Harvards of this world or Cambridge or Oxford or the other top institutions by wondering, after all, if they already have top academics and they get to select so highly the top students, how much value are they adding to the students? In many countries, the US for example, presidents of second tier universities or even community colleges are



saying that, because they receive a much more diverse student population, they may be adding more value to what the students learn. Tools are being developed to assess what students actually learn, and you may be familiar with the OECD AHELO project, to do that in an international perspective.

And then if we talk increasingly about what can be learned from these programmes that are offered online, be they blended programmes or only online or part of traditional university programmes, how effective are they? Do we know how to measure? Is it just doing the same thing as we do in the classroom online, or do we do it differently? Carnegie Mellon University has developed much software using artificial intelligence, for example. They have a Statistics course and they wanted to test whether it's more effective, so they randomly assigned students to the traditional classroom course and others to the online only course. At the end of the term they compared their results and they were very disappointed – it was equally good or bad. But they were hoping that the online would be much better. But then somebody asked a question in a different way. So they ran a second experiment, randomly assigned, but the online students could finish whenever they wanted. And lo and behold, on average they took half the time to finish the course for equivalent results. So we are just beginning to grasp how to deal with the assessment of e-learning.

The second topic is Equity, which I believe is in some of the British newspapers as the former Minister of Higher Education, David Lammy, wrote or was interviewed recently, complaining that not much progress had been made in his challenge to Oxford and Cambridge. As we say, "It's not wrong to be different; it's wrong to be treated differently if you are different." What does it mean to look at equity in tertiary education? First, to recognise that a lot of what happens in terms of disparities at the Higher Education level is an outcome of what happened or did not happen in primary and secondary education. And then recognise that there are additional financial barriers and that's part of the worries about the proposed changes in your country in terms of financing, but also we need to recognise that there are very important non-financial factors that affect the equity outcomes in terms of information, in terms of the motivation of students from disadvantaged groups, and in terms of proper academic preparation.

Advances in neuroscience and genetics are now challenging the common view that a lot of our talent is innate and that what is acquired is less. Now the balance seems to be saying that most of what we are able to develop is not from genetics, but is linked to our own experience and the environment in which we grow up and evolve. And I want to illustrate that with a tale of two Chemistry Nobel Prize Winners, Lord Rutherford, and Sir Chris Langan. Most of you must know Lord Rutherford was born in New Zealand and showed good academic disposition and was lucky to get a scholarship that enabled him to come and study in the UK, and in 1908 he received the Nobel Prize for Chemistry. He was at the leading edge of Physics and Chemistry, he was the father of modern Nuclear Physics, a very brilliant career indeed. But then Chris Langan is not a Nobel Prize winner; however, he is considered to be the most intelligent man on Planet Earth nowadays, as those of you who may have read *Outliers* know. Graduate students entering Harvard on average have an IQ of 115. Einstein had an IQ of 135. Chris Langan's IQ is 195. And yet he's a nobody. He didn't do very well at school and he hasn't done well since. He grew up in a family with four brothers – all five of them are from a different father. They were hungry when they were kids. He went to high school – nobody realised that he was



intelligent. He had the choice between University of Michigan and University of Nebraska – he chose University of Nebraska. He had a scholarship the first year. At the end of the first year the application had to be signed for the scholarship to be renewed. His mum forgot to do that. He got kicked out of school. Nobody realised, because he didn't have the proper social skills, because he didn't have the proper motivation, that he was a genius. He's a self-learned person, he is so knowledgeable. The reason he came onto the radar screen is that he participated in TV shows like Millionaire. He knows so much. He writes Physics papers that nobody understands – some people say they're nonsense; some people say it's so sophisticated that they don't understand it. Just to illustrate the importance of motivation and social factors.

Now there are very interesting experiments in India where society, as you know, is highly hierarchical in terms of castes. This experiment brought young kids together in a classroom, randomly selected – a group from the highest caste, a group from the lowest caste. The first experiment – the kids were welcomed and told, “Hey, young and beautiful kids, please sit down where you want, we have this easy test, take it.” So they take the test. The kids from the low caste are doing slightly better, but basically the same results.

Then the same experiment was done in a different way. They brought the kids in and, right as they were entering, said, “Hey you, the beautiful kids from the high caste on the left, sit down please. And you, the kids from the low caste, here.” Just reminding the kids where they belonged was enough to alter the results of the test. Significantly lower results from the low castes. Just to illustrate again the importance of motivation.

In an analysis of PISA results, the latest reading score, the OECD calculated the equity index measuring the degree to which social background predicts the scores of the students and in France, Germany, UK and US the social background has a very high impact on the reading score results, much more than in other countries such as Canada, Italy, Finland. As some of you are aware, there is a big debate about world class universities and I must confess to having contributed a little bit to that debate, but we have to remind ourselves about the tension between excellence and equity and I think that's part of the debate in the UK and also in the US, accusing top universities of being very selective and sacrificing equity because of the search for excellence and trying to get the best students into the top schools. If you look at the US News and World Report ranking, you see that one of the key factors that has a high coefficient, high weight, is the degree of selectivity whereas efficacy, which is a measure of how high the university or the college takes its students and graduates, taking into consideration the social background of the students, so it's an indirect measure of equity, has a much lower weight than selectivity. So the rankings by themselves are, at least in the US, promoting this notion of excellence rather than equity. And then the frequent use of merit scholarships rather than needs-based scholarships is also a factor that translates itself into much higher subsidies going to kids from richer families than from low economic social backgrounds. Then, as a study from the Sutton Trust shows, in the UK graduates from the expensive private schools are 50 times more likely to get into Oxford or Cambridge than kids from the lower income groups. So that's part of the debate, I guess, in your country.

The third point that I want to discuss is the crisis. What does it do to funding? It's a big item here in the UK, but in most countries it has an impact in terms of quality.



When you have to deal with the same number of students or an increasing number of students with fewer resources, quality is likely to suffer. It has potentially an impact on equity with financial aid resources becoming scarcer. It has also an impact on the ability of the institutions to compete internationally. If you look, for example, at endowments comparing the UK and the US, already before the crisis we see that, if you look at the richest university in the US, Harvard, and the richest university in the UK, we have already a ratio of 4:1. Never mind that Harvard lost 27% of its endowment two years ago - they have already made up partly for it and they're back on their feet. So, in many countries, relying on private sources of funding will not compensate easily for the decrease in public resources.

But I want to challenge you to think beyond US and beyond comparisons between the UK and the US because, when I went to see the fortune teller last night, there was a gentleman next to me and he was also asking about his future and the lady answered that she couldn't help him because she cannot read Chinese. I believe a lot of our future, whether we like it or not, has to be linked with China. I think that, instead of looking in the traditional way across the Atlantic, we need to change our vision of the world and think that there is more to look at here, whether we like it or not. As public funding is decreasing in the US, as public funding is decreasing in the UK, public funding is increasing in China and many other Asian countries.

I was chatting with a friend from Australia who was telling me how many Australian professors were keen to go and spend a summer in a Chinese university because there they could use the high tech lab equipment and do their leading edge experiments that they cannot afford to do back in Australia. Recently there was an item in the News about this Chinese professor at Yale who has been lured back to Shanghai because there he will have his own building with his own laboratories and be able to conduct research at a level that may not even be possible in the US. So, as Bahram mentioned at the beginning, while the crisis is hitting many countries hard, the pain is not shared evenly and we have to try to think what it means for the future of Higher Education in this part of the world.

Last May the Chinese President had a two day meeting with the Communist Party and the leaders from all the provinces and he launched what I had never heard about – a National Talent Development Plan. It's not any more about human capital, about human resources – it's about talent, really going after top level brains and capacities and developing them throughout the country.

So it means that we have to be realistic about what we do, what we can do, what we can afford to do. Try not to be too complacent about where we stand.

And that leads me to my last point about the need for flexibility, for agility. In this top business school in the US which used to be No 1 in the ranking, because they were the best, they started to be a bit complacent and not change their curriculum, not transform themselves, and then they started to slide down in the rankings – to No 2, No 3, No 7. Then they got all panicked because of the competition, and this is the slide they used to promote themselves into action – The last congress of the dinosaurs: “The picture is pretty bleak, Gentlemen. The world's climates are changing. The mammals are taking over and we all have a brain about the size of a walnut.” Now I know for a fact that British universities are not dinosaurs, but believe me, in many countries where I work I see universities that are so set in their traditional ways of



doing things that they forget that the world around them is changing rapidly and that we need to be looking at what's happening and we need to change, we need to have good feedback mechanisms, we need to do strategy planning to orient change, and we need to be able to react and adapt very quickly, because the world is changing around us. Too often when we see a problem we have a very bureaucratic way of dealing with it. We set up a task force. We spend three months deciding who is going to be on the task force, who is going to chair, who is going to be the rapporteur, and after two years we conclude, "Whew, that was close, we almost decided something."

So, where does this leave us? I want to share with you three quotes about the future, trying to summarise what is happening. The first one is from the French philosopher, Paul Valery, who wrote once: "The trouble with our times is that the future is not what it used to be." And then William Gibson, the famous science fiction writer, who reminds us that: "The future is already here, it's just unevenly distributed." But since I'm an optimist, let me share what Alan Kay wrote back in 1971: "Don't worry about what anybody else is going to do. The best way to predict the future is to invent it." And Alan Kay, as some of you may know, was the inventor of the Macintosh Windows system that is so important today.

But it's not only about the future. I want to tell you a last story about the past. Two hundred years ago this maths professor in Cambridge, Massachusetts, went into a classroom and he was so shocked that he wrote to his wife that evening telling her, "You won't believe what I saw today. I went to this new school and they had something on the wall, kind of a black board, with a piece of cloth and some chalk and I wondered 'What is this all about?'" Now we all know today that it became the main pedagogical support for the following 200 years, and the question to ask today is whether the computer and the internet is going to create such a big revolution as the blackboard and transform our way of learning and thinking. Professor Levine, former President of Teachers College at Columbia University in New York, predicted the end of what he calls the 'brick university', soon to be replaced by the 'click university'. I'm not sure that we're going to see such a drastic transformation, but definitely our universities have become 'brick' and 'click' and we now live in a world – and we're reminded of that by the changes that the British Government has introduced in the funding – where competition is much more acute.

And since I come from North Africa, let me share an anecdote with you to illustrate this very acute competition. We have this beautiful animal in my country called the gazelle which has a very challenging life because, every morning, the gazelle wakes up thinking, "Today, once again, I need to run faster than the fastest lion if I don't want to be eaten up alive." Now, does the lion have a better life? I'm not so sure because every morning the lion gets up thinking, "Today, once again, I need to run faster than the slowest gazelle if I don't want to starve by the end of the day." What is the moral of this little story? It doesn't make a difference whether you are a gazelle or a lion, whether you are a small university or a large university, a poor university or a rich university, you cannot afford to stay put because the world around you is full of other universities that are changing very rapidly. I know some of you will not like it, but I don't like it either that we live in a world where the rule of the strongest is the rule. But I didn't invent this world. That's the way it is, whether we like it or not.

And if there's only one message I can leave you with, it's please do not allow others to define your future. You have to define your own vision of where you want to go.



Let us all remember the wise words of the Roman philosopher, Seneca, who told us more than 2,000 years ago that, “There is no favourable wind for those who don’t know where they are going.”