ISTANA ISKANDARIAH
KUALA KANGSAR

ADDRESS
BY
HIS ROYAL HIGHNESS
SULTAN NAZRIN MUIZZUDDIN SHAH

ON
'BUILDING A DYNAMIC AND INCLUSIVE EDUCATION ECOSYSTEM'

DATE: 6TH DECEMBER 2017 (WEDNESDAY); TIME: 10.00 AM
VENUE: CHANCELLOR HALL, UNIVERSITI TEKNOLOGI PETRONAS, BANDAR SERI ISKANDAR

Ladies and Gentlemen:

1. It is always a great pleasure to be here on this beautiful campus, which received the Aga Khan architecture award in 2007. In such inspiring surroundings, I want to address my remarks today to the important topic of the future of higher education here in Malaysia. A higher education sector that is dynamic and inclusive means, inter alia, one that is able to adapt effectively to the new realities being created by the wave of technological change that we are currently experiencing. This issue of 'future-proofing' of higher education has become the subject of much interest of late, and various forward-looking initiatives are already being trialed here in Malaysia. Such discussions are highly relevant to the many undergraduates here today, who will be directly

affected by the coming transformation of both the workplace and of higher education.

2. These debates about the future directions of higher education build on the considerable progress that has been made in the sector over the past few years here in Malaysia. In keeping with clearly defined goals and strategies, we have sought to expand and strengthen the teaching and research capacities in our universities and colleges. This has been to the great benefit of our domestic students, and has also further improved our standing as an international destination for higher education. We now have over 150,000 foreign students studying here, as well as growing numbers of leading foreign universities.

3. Our own universities are registering continual improvements in global rankings, in keeping with policy goals. One of our oldest institutions, Universiti Malaya, is steadily approaching the global top 100, while Malaysia has 4 universities in the 'Top 50 Under 50', an index which ranks younger institutions such as many of our own. Registered patents and article citations have both more than tripled in the past decade, highlighting the improving quality of our research activities. These include many undertaken at this university, Universiti Technologi PETRONAS (UTP), which I also want to warmly congratulate for its achievement of an outstanding rating once again for its teaching and

learning quality, one of only 8 higher education institutions in the country to do so.

4. Our efforts in relation to innovation are also noteworthy. We have introduced a number of interesting and cutting edge initiatives. These include a more holistic approach to student assessment in the integrated cumulative grade point average or I-CGPA. This includes 'softer' skills that are increasingly important to the creative roles envisaged in the future economy. Another forward-looking program, the APEL, or Accreditation of Prior Learning, is designed to take account of the broader experience and employment experiences of returning students. This is a crucial element of expanding accessibility to higher education. Other interesting innovations are the CEO@faculty and the two years in university and two in industry (2U2I) programs. These both promote the closer links with the private sector that are so necessary for higher education to evolve in line with the needs of the changing economy.

5. These initiatives are laudable and ground-breaking, and they chime closely with current thinking on new approaches to higher education. Much is clearly already being done to introduce greater dynamism and more inclusivity into the sector. But we still have some way to go towards building a higher education eco-system that is fully capable of adapting to the opportunities and challenges associated with the so-called 4th Industrial Revolution. To prepare students to flourish in

the unpredictable environments of the future, such an education system must itself be highly agile and flexible, capable of anticipating and responding to the coming changes. It must also be bold and innovative, qualities that go against the grain for tradition-steeped higher education institutions. Such an eco-system must also by definition be comprehensive and systematic. This implies sweeping and radical changes to the current model, which is based on teaching, assessment and ranking methods that were developed in and for a very different era.

6. In order to continue to progress towards our core objective of achieving global prominence and excellence, we must not only keep up with the current progressive trends in higher education, but also stay ahead of them. This is the challenge we face in transforming our current system so that it can play this role of educating future generations as effectively as possible. To this end, we can draw on our considerable experience in other fields. Malaysia is classified as a leading innovator overall according to one influential measure of digital uptake across countries,[1] in which it is classed as both a 'break-out' country, and a 'stand-out' one. This means that although the penetration of digital technology here is still relatively low, it is evolving rapidly. We have some of the strongest momentum and highest potential in this area of anywhere in the world, along with China, Saudi Arabia and Turkey. Another index ranks us 23rd of the top 50 innovative countries, based on

[1] https://hbr.org/2017/07/60-countries-digital-competitiveness-indexed

R&D intensity, concentration of researchers and patent applications.[2] We must now apply some more of this technological prowess and entrepreneurial zeal to the higher education sector.

7. Higher education more broadly is currently in a state of considerable flux, as the accelerating pace of technological change of course has major implications for the sector. These relate to the delivery and to the product of higher education, both of which are likely to change beyond recognition in the coming years from their current well-established forms. Teaching methods are being fundamentally transformed by the internet and by other digital technologies. The extent of the changes that have already taken place can be seen in the ever-rising enrollment numbers for 'massive online courses' or MOOCs. These reached a reported 23 million students globally in 2016, only 5 years after their introduction. By dramatically expanding the accessibility of higher education in this way, this one innovation alone has made a major contribution to promoting inclusivity.

8. Technological change also of course has significant implications for the outputs of the higher education sector, which will be affected just as profoundly as the delivery methods. This is due to the gradual but whole-scale transformation that is taking place in the modern workplace, as advances in artificial intelligence and robotisation usher in the 2nd

[2] Bloomberg innovation Index 2017

machine age. One oft-repeated prediction suggests that fewer than half of present job categories will still be around in 10 years, while another claims that two-thirds of today's children will do jobs that have not even been invented yet.[3] Of considerable concern is the fact that skills and training that are highly valued today will inevitably become obsolete, including some which take years of dedicated higher education to acquire. Again, all of these changes will affect some of you here today directly, as you continue your education and go out into the workplace. Whatever the timescale and extent of these expected changes, what is not in doubt is that they will occur in some form. It is also clear that we will not be able to predict or understand in advance the shape that they will take.

9. Just as is happening in other areas, discussions are now taking place around the world about the implications for higher education of these coming changes, and about how best to go about 'future-proofing' the sector. And as is happening here in Malaysia, various steps are being taken in a number of places to introduce more innovative approaches that are better suited for our changing times. These include new teaching methods that are more student-centered than in the past, as well as changes to curricula and assessment methods. Another key change is the increasingly direct involvement of industry in the sector. This can help to ensure that students will be trained in areas and skills

[3] World Economic Forum 2015

that are likely to be the most useful and relevant in the future. The use of big data is also being pioneered, again as in other sectors, to map student choices, teaching needs, and a host of other metrics, to an extent that has never been possible before. This can help greatly in planning and policy development.

10. Again as here in Malaysia, these changes tend to be incremental, scattered and small-scale as yet however. They are still far from the radical transformation of the sector that appears to be what is required. Debates on the future of higher education are increasingly focused on this need for radical rather than incremental change. As one forward-looking policy report put it, 'academia needs to move faster, in order to prepare graduates for a world of smart machines'.[4] Some prominent voices are calling for a 'new education', that is more suitable for the new era we are entering. This requires substantial structural change, based on a redesign that is 'systemic and systematic'. [5]

11. This view rests on a growing recognition that higher education is no longer fit for purpose, and that in its current form, it is incapable of fostering the skills and attributes that will be necessary to succeed in the future. According to its critics, the overly prescriptive and hierarchical nature of the existing system is anathema to the development of the

[4] 'Trends for Higher Education' (Spring 2017) www.scup.org/trends
[5] C. Davidson (2017), 'The New Education : How to Revolutionize the University to Prepare Students for a World in Flux', Basic Books, New York

qualities likely to be of most value in future employment scenarios. One key to competing with the robots and artificial intelligence that will be an integral part of the future workplace, will be the development of qualities that they cannot easily attain, and that cannot easily be programmed. These include creativity, communication and collaboration, among others. Even in more science-based or technical fields, such as those in which UTP specializes, such 'soft' skills will be vital. These qualities are far more likely to flourish in educational environments that are flexible and responsive, rather than the more sterile, formulaic ones of the past.

12. Our existing education model was developed in a very different era than the present one, and in response to very different economic and social conditions. It was designed to meet the needs of the industrial era, with its mechanization and factory production lines. At the core of this system are processes of standardization and regularization that were what was required in that context. These are found in numerous elements of the approach that was introduced into schools and colleges during the second half of the 19th century and that has flourished ever since. These include the orderly and hierarchical lay-out of the classroom and lecture theatre. This closely mirrored arrangements in the factories and offices of the new industries, and contributed to the effective organization and training of labour that they required. There was also an increasing focus from this time onwards on specialization, in marked contrast to earlier ideals of what it meant to be learned, based on a polymath 'Renaissance Man'. This reflected the need for growing

numbers of professionals with specific training, to manage and govern the new industries.

13. At the time, these new approaches were also viewed as radical. They challenged and ultimately super-ceded the existing pedagogy, which was limited to the training of ministers and academics. One man who played a crucial role in pushing through the necessary reforms was Charles Eliot, who served as president of Harvard University for 40 years from 1869 to 1909. Eliot was perhaps the foremost influence in shaping higher education in its modern form. Numerous features of our current education eco-system were first introduced by him at Harvard, and then gradually adopted elsewhere. These include standardized university entry systems such as SATS, exam-based assessment, and the ranking of institutions themselves according to their comparative performance. These central elements of the system crafted by Eliot and his colleagues remain in place today, with competitive exam performance still the predominant measure of success in higher education.

14. But these foundational aspects of the existing education eco-system, developed in the context of 19th century industrialization, appear increasingly inappropriate for the digital era of the 21st century. To navigate effectively the uncertainties of the future, students will need to be equipped with very different skills than those that were useful in the past. As one commentator put it, what is needed is ‘an intellectual toolkit

of ideas and tactics that is as interactive and dexterous as our post-Internet age demands.'[6] The structure and methods of teaching developed during and for the industrial period, and the subjects that are still being taught, are thus no longer necessarily the most relevant for today's changed context. And the assessment criteria inherited from that time, based on comparing student performance according to pre-established norms, may equally no longer provide the most useful measures of future success.

15. New approaches to higher education suggest that above all today's students need to learn how to acquire and process information and knowledge. In the age of the Internet and google, the passing on of information is no longer the central objective of education. Instead, students need to develop the ability to learn, and to question and critique the available sources of information. They must be able to draw their own conclusions from them, rather than just repeat the received wisdom or established view. It is only through such questioning that we are likely to be able to develop solutions to the various challenges that we will face. While a deep grasp of science and technology will of course be crucial to this process, a strong grounding in the humanities and liberal arts is also a vital element in the development of the critical perspectives that are so necessary.

[6] Davidson 2017

16. A very different approach to learning is thus required, with delivery methods that are much more ‘student centered’ than those of the past. Such student-centered approaches are based on the active engagement and participation of students in the learning process. They take full account of the prior experiences and attributes of each student, which in turn contribute to further learning. This contrasts with existing methods, in which the student is expected to master a body of specific and specialized knowledge, and reproduce it in an exam. Formal lecture and classroom settings are supplanted by self-paced individual and collaborative learning, and testing is replaced by the attainment of milestones and completion of projects.

17. Life-long learning is another key trend, with a growing recognition that continued education, training and skills acquisition will be necessary to succeed in a changing and unpredictable world. There are already important initiatives in this area here in Malaysia, as mentioned. These include efforts to take account of prior student experiences, and assessment methods that go beyond exams. The growing links between higher education and industry contribute to ensuing the relevance of courses that are delivered, while helping to promote access to higher education beyond the current predominantly youthful demographic.

18. Other countries are also investing heavily in continuing and adult education. Singapore for example has established a new institution

dedicated specifically to this area, SkillsFuture Singapore. Its objective is to guide citizens at all stages of their career towards targeted education and skills programs. It is closely tied to industry bodies. In South Korea, industry also plays a key role in the expanding vocational training sector. Meister schools, modeled on Germany's effective apprentice system, provide students with flexible learning that is geared specifically towards the changing needs of industry. Graduates of these schools are greatly in demand as a result.

19. The further evolution of these and other such changes to the traditional education eco-system will require significant policy reform and innovation. We are now crafting a more comprehensive policy to address these pressing issues, in the form of MyHE4.0. In order to achieve the radical changes that do appear to be necessary, it will be important to foster a more entrepreneurial approach towards higher education than at present. This is likely to include an even greater role for industry and for public-private partnerships, drawing on the greater dynamism and innovation that exists in the private sector. This is particularly the case in relation to the adoption of digital technologies, which is, as mentioned, an area in which Malaysia is leading the way.

20. There are some risks associated with this strategy, given the fundamental tension between the public mission of education and the

profit motive that drives the private sector. But it is necessary now to bring some of this risk-taking and entrepreneurial spirit to the challenging task of educational reform.

Ladies and Gentlemen:

21. We must now apply such an approach to our higher education sector, to ensure that it does become sufficiently dynamic and inclusive to flourish in an unpredictable and fast-transforming world. This will be crucial for us to continue to fulfil our objective of becoming a globally recognized higher education destination. As was the case in the 19th century, it will take much courage and tenacity from visionary leaders to introduce the radical reforms that are required. Such efforts may encounter resistance from the more traditional institutions. But such systemic change has clearly become absolutely necessary if our higher education sector is to be able to keep up with the new developments as they unfold. And it is also urgently required, if we are to provide our students with an education that equips them effectively for the ever more complex challenges that we face.