

EDITORIAL

USM Apex University Status: Transforming Higher Education For A Sustainable Tomorrow

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This special editorial for the month of January 2009 is “THE” interview with Professor Tan Sri Dato’ Dzulkifli Abdul Razak, Vice Chancellor of the Universiti Sains Malaysia (USM). He talked to us about the Apex University status that was conferred on 3rd September 2008. While most newspapers and the rest of the media were in frenzy interviewing him that month, MJMS decided to catch up with him on Monday 15th December 2008 just before the celebration at the Dewan Utama, Universiti Sains Malaysia Health Sciences Campus to commemorate the 25th anniversary of the establishment of the Hospital Universiti Sains Malaysia by Yang Berhormat, Minister of Higher Education Datuk Seri Mohamed Khaled Nordin. References to USM as an APEX University are included at the end of this editorial especially for non-USM readers.

The questions that MJMS Editor Prof. Jafri Malin Abdullah asked were focused mainly on the new APEX status. We were interested to learn how this would impact human resources, research and infrastructure concerning the medical, dental, pharmacy, health and biomedical sciences communities over the next few years. On the local front, much discussion has taken place (in both print and electronic media) on the measures taken by the various agencies on the front line of this outbreak. While there are some who feel that too much is being done, so much so that everyday activities are being hampered, there is probably an equally sizeable group in our population who feel that the measures taken have been insufficient. During an outbreak, especially one of global magnitude, many forces influence our reactions to the perceived threat. The operative word here is perceived, and perception is a heterogeneous entity that is governed by myriad factors. Hence, it is imperative that our reactions be as evidence-based as possible. Our responses should therefore always be based on sound science. At the same time, they must be guided by common sense and a clear understanding of local realities, both of our strengths and our limitations.

MJMS : *What are your views on how USM as an Apex University can enhance the biomedical research currently being performed by the Schools of Medical Sciences, Pharmacy, Dentistry, Health Sciences, and by the Advanced Medical and Dental Institute, the Institute for Molecular Medicine and other new institutes as well as Hospital Universiti Sains Malaysia? How do you plan to retask the*

“classical service oriented” clinical or paraclinical staff to fit the APEX University template?

Professor Tan Sri Dato’ Dzulkifli Abd Razak : APEX is an acronym that stands for Accelerated Program for Excellence, which means that it has wide boundaries in terms of its definition. The extent of these boundaries is open to interpretation. In the context of this university, we have decided that APEX should encompass a global dimension.

One factor that is particularly relevant to APEX university status, taking excellence into account, must be related to the “Bottom Billions” group. This refers to the four billion people, roughly two-thirds of the world population, who are neglected in terms of education, health, socioeconomic parameters, and quality of life, since they survive on about three US dollars per day.

These are the groups that we feel must be given attention as part of our global agenda, and this is especially true if we wish to promote longterm peace and a harmonious world. Someone needs to focus on these groups and make sure that the gaps that exist today are not widening and, instead, are being bridged as swiftly as possible.

We project that the world’s population will reach 7 or 9 billion people in a few years’ time. We run the risk that these already-neglected groups will come to comprise even more people, and that the problems will worsen further.

Already we see that that globalisation has increased the wealth of a few people, while the gap between the rich and the poor continues to widen -

a fact that is seldom acknowledged by proponents of a global economy.

As we see more people becoming marginalised, it becomes ever more important for APEX USM to work directly with these groups of people. We often talk about how we want to reach out to the majority of the world's population of the world – especially those who deserve a quality education.

We do not confine ourselves only to Malaysia, especially given that Malaysia's problems relative to that of the developing world are somewhat manageable. In general, the poor in Malaysia are substantially better off than the poorest individuals in other countries in other parts of the world.

Accordingly - if we want USM to be a global player, we must have a global agenda and remain committed to it. We cannot be a global player without any commitment to a global agenda. Our global agenda is basically to reach out to the four billion people at the bottom of the socio-economic pyramid, in tandem with the United Nations Millennium Development Goals (MDG).

In terms of unifying the facilities and institutions at USM toward this goal, we essentially have to focus on reorientating some of these services to the needs of the MDG target groups. In general, I would say we want to focus on the major problems at this level of the pyramid.

The example that I normally give would be to look into the needs of the majority as compared to needs of the wealthy few. Let us talk about the eradication of disease within the MDG framework. Our focus would be on the basic infectious and communicable diseases, rather than the diseases of affluence that often are the preoccupation of the developed countries. In other words, there must be some conscious effort to tackle the diseases of the poor, namely, the neglected tropical diseases or the NTD for short, including typhoid, malaria, and cholera – the root of suffering for millions of people worldwide, Zimbabwe being the most significant example of late.

We still do not understand why such a large percentage of the world's population have not received their fair share of drug discoveries directed at treating these diseases. It is certainly not a question of technology, because the technology is available. The technology exists, but what is lacking is the political will!

It is also not a question of finances, because the solutions to these problems are low tech – or at least they can be low tech for the time being. It is all a question of how we strategise and actually improve the so-called scientific and technological approaches to these diseases.

I believe that the classical example that the

USM has offered in this area is our innovative work on typhoid diagnostics. At one time, it took a couple of days to diagnose typhoid, and the need for a cold chain to perform the diagnosis. This meant that if you wanted to treat typhoid in the deepest jungle of the world, say in Africa or even Malaysia, it is not something that can be easily done because of a lack of refrigeration. Most of the poorest and most remote places are without electricity, and are associated with a myriad of other problems that pose severe logistical challenges.

Fortunately, our scientists have managed to innovatively change the technology to a short 15-minute diagnosis that does not refrigeration and is low-cost. Our technology is feasible for deployment in jungles and many other environments. In other words, these are the kind of priority-based mind shifts that we want to encourage by using modern technology to reach out to the greater part of humankind.

In fact, these are the challenges that we must face in all fields - including medical sciences, pharmacy, dentistry, health sciences, and emerging areas such as brain/cognitive sciences. Specifically, how can we leverage the present body of knowledge to level up the quality of life for the majority of people, by enhancing technology to make it more accessible, available and affordable. We must address the issues of quality and equity simultaneously. This calls for experts to work together across disciplines - a transdisciplinary mode of discovery. One example in the context of brain sciences, is the deployment of robots with innovative power supply to replace human personnel to treat ill people in remote areas of the Third World where doctors are scarce.

Our very innovative approach would allow medical procedures to be carried out in places that are currently out of medical reach due to the lack of talent and facilities, for instance. We need to think differently in these contexts. We have to systematise our mission of trying to reach out to the bottom billions. Most importantly, our work must be guided by our own ingenuity, our own resourcefulness, our own innovation, taking into account our values and cultural norms.

At this juncture, it is appropriate to define or describe APEX, and how it is from the classical service orientation.

In general, when we talk about APEX, we think about new ways of doing things, with significant future-orientated intent. That alone is sufficient to differentiate APEX. In other words, we need to dispense with the "old" ways. Whenever we encounter something "old," we need to assess how we can do better - the future will be different.

To move forward we really need to create our own future. However, at the same time we must pay attention to situations where “old” refers to some very basic fundamental principle. We cannot change our roots, because those are the essence of our being.

As an APEX status university, we will reexamine the assumptions that we often take for granted, and we will break down barriers that impede our progress toward the future.

To start with, we ask the question - what do we want to do now? We want to break down the artificial silos that are really an artifact of scholarship after it was forced into a “reductionist” model. While human beings will always remain “whole” people, science has torn the human apart into bits and pieces, metaphorically speaking. So too in the context of medicine, where everything is examined “separately” and not “holistically.” To piece the patient together again becomes problematic. Most of us would already face difficulty putting parts of a machine back together again after it had been dismantled. Imagine the much greater difficulty in the case of a living organism. In other words, the “reductionist” approach is not entirely satisfactory, moving forward.

While it is important to recognise that there are various disciplines in the sciences, it is also equally important to recognise that all these disciplines are meaningless on their own (do not overspecialise!) if we do not understand how they all relate to one another, and to other non-science disciplines as well. This is the age of convergence. After all, it is not too long ago that Science was better known as Natural Philosophy!

Again, from the “old” experience we begin to see how one can span as many disciplines as possible. The fusion of health sciences with technical science, for example, (as in biomedical engineering) can bring enriching ideas. It is only natural to expect much more from various other cross-fertilisation approaches, as in the case of neuro-economics or neuro-marketing. Symbolically, APEX can be seen as a unification of data, information, knowledge and wisdom, in order to reach the truth. In similar ways, as we adopt APEX status, we too want to see the larger base (made up of numerous disciplines) adopting transdisciplinary approaches to power our search for truth.

In other words, we cannot remain static and silo-like. To pursue only one discipline is almost like digging a hole in the ground that becomes deeper and deeper and deeper, until it gets so deep that we lose sight of where we are. Below the Earth’s surface, it is hard to measure one’s depth. We consider it important to also dig sideways,

namely by joining the silos and creating a new workspace where things are interconnected. There is both depth and breath in the notion of a number of disciplines that converge all at once. This is what we refer to as “transdisciplinarity.”

Transdisciplinarity means that we work not only with our own group of people who are experts in their areas, but also that we work with experts from other disciplines, including the users, who are experts in their own right. The more important thing is that we also remain in constant touch with one another, so that we can be alerted almost immediately to what is relevant. This is a new mindset, beyond the usual inter- or multidisciplinary where most academicians remain very much within their own domain, and rarely interact with their counterparts. This the mainstream way of doing things today, as well as the dominant orientation in terms of both teaching and learning. For this reason alone, I believe that the structure of the university must change.

The concept of schools may need to be more liberal than how we understand it today. Perhaps we need to think of clusters that combine elements from virtually every school. Moreover, the clusters cannot be confined to within the universities. They could operate beyond the universities, creating clusters with any institution within Malaysia, or even outside Malaysia. I think a good start perhaps is the Universiti Sains Malaysia - University of Sydney (USMUS) programme. We plan to pursue a similar collaboration with the University of Gent in Belgium. We would like to explore industrial partnership possibilities as well. Creating similar clusters across disciplines is something important in trying to move APEX forward, thus ushering in an era of “new” sciences.

Our thinking reflects the reality of the 21-st century, where people as well as knowledge are converging once again into “one” whole, be it as “one” human race or one holistic body of knowledge. We need to meet the demands of the borderless world and address the problems it has created. Consider environmental issues, for example. There is no single discipline that can handle this problem. There must be multiplicity and transdisciplinary approaches in any real solution. Increasingly, ethical questions are becoming just as important - previously one could do science without placing much emphasis on ethics (which explains several current environmental problems), especially in developing countries. This is no longer true today, and the same applies to the question of morality. We need to pay particular attention to other non-scientific disciplines, which requires the expertise of several different groups of people, i.e., the

social scientists and those in the humanities who can offer guidance as to what is possible and not possible and what transcends human dignity and rights.

In summary, the so-called classical or traditional approaches based on the “old” way of thinking must adapt to the “new” way of thinking and move into the APEX mode of collaboration in the context of transdisciplinary clusters.

MJMS : *Where do you see our institution in 2013? Which centres or facilities will slow down the rest of USM (for example, only 15% of the lecturers in the School of Medical Sciences have PhD degrees compared to other Schools or Centres)?*

Professor Tan Sri Dato’ Dzulkifli Abdul Razak : We have five years to work on these issues. I think this is a very short time frame, given the amount of work that needs to be done. Nevertheless, certain elements must be in position such that, come 2013, we should already have defined the direction in terms of where universities in Malaysia (not only USM) ought to be if they want to compete on the world stage.

By 2013 we need to have signalled to the international community that Malaysia, and USM in particular, has expertise to offer to the world. At that particular time, we should already be able to push out or create a dent in the “old” ways of doing things. At the onset, we were questioning and debating the metaphor of existing universities, at least in Malaysia, which was akin to factories producing tangible items. This “factory” metaphor talks about producing students that we called products, some labelled doctors, others pharmacists or dentists, as though they are “lifeless” items. Indeed, we basically used to organise our university like a factory.

For example, the new students were considered the raw materials or ingredients to be processed by the university (‘the factory’). The students are streamed into assembly lines (it is no coincidence that assemblies are held in schools) so that the processing can begin. It is like going through a conveyer belt every year, depending on the courses. It could be three to four conveyer belts for the sciences and arts, and an additional one for medicine. However, at the end of each conveyer belt there is a quality control step (our final year examinations) to determine what happens next. If they pass then they move on to the next conveyer belt. Otherwise they go for remedial work, to be rectified, and if this does not succeed, they are written-off - in other words, they fail and exit the

system, since they were unable to meet the quality standards.

For those who manage to pass through several successive conveyer belts, they are ultimately ready to be sold at the marketplace. We call this employment. If they are not employed, we say they are useless, and if employed and not doing a good job, then it does not meet the standards set by the marketplace. Indeed, the best fit is the product that is tailor-made for the market!

The factory-cum-market metaphor came into being during the era of the industrial revolution. It sought to re-train people so that they could transition from agriculture to factory shop floors. They needed to create a system that could change behaviour and habits to suit the needs of the industrial economy. What better place to do that, if not in schools and universities? This has not changed in any significant way since. In fact, as the marketplace becomes increasingly dominant, universities gradually continue to lose what the little educational identity remains.

Going forward, the question we must ask ourselves is as follows: if we are in the 21-st century and in the post-industrial age, why are we still using the “old” and “dysfunctional” industrial metaphor to run a university? The immediate challenge for us is to understand the more accurate metaphor for the 21-st century, as people now move from the factory shop floors into a more sublime digital space, which is quickly transforming the economy and society based on knowledge. Individuals are no longer regular blue or white-collar workers, they are knowledge-workers - some call them the “gold”- collar workers.

For USM, our tagline ‘The University in a Garden’ has been a “new” metaphor designed to reflect the notion that our university is no longer a factory. Why a garden? This is to reflect the diversity (transdisciplinarity) which is an important component of today’s learning paradigms. A good garden will have a diversity of flowering plants, various types of big and small trees, and shrubs. A bad garden is more like a plantation, and stands for the university of today – uniformity, sameness, and standardisation. It will be a formidable challenge to work across disciplines and create even more diversity. Indeed, the whole concept of diversity has become a vital element of the new university. In the old factory model, diversity was unimportant.

More specifically, let us look at the metaphor of a tree. While we appreciate trees as something naturally beautiful - the lushness of the leaves, the colourful flowers and so on - we often forget that the tree is anchored to the ground, without which there would be no trees. In other words,

the anchoring is what makes a tree viable; if it is not well anchored by its roots then it will be less of a tree, because any strong winds, like the winds of globalisation, can force the tree to fall or get uprooted. Some of our questions include: what should be the role of the roots that anchor the tree? How well developed are these roots? How extensive is the network that penetrates into the soil? Yet, these are often not the measures we would use to evaluate a tree, or even a garden for that matter. In metaphorical terms, we wonder what should be the role of our own indigenous wisdom, intellectual values, and cultural norms that are underlined by our centuries-old culture and civilisation? By this I mean our own values; Islamic, Malay, and Malaysian values and way of life. More specific to the Malay values for example, the ideology of *padi* - "lagi tunduk apabila berisi" [you are more humble as you become more successful] can be a significant factor in determining the way forward in the 21-st century. Therefore, even if we adopt the garden metaphor, we cannot forget the value system – the questions of ethics and moral values which are an integral part of the education system.

We sometimes see medical doctors who at the beginning of the course said they want to save the lives of other human beings but, at the end of the day, they care only about materialistic issues. They want to create as much wealth for themselves at the expense of everything else; when asked to serve rural areas, they are reluctant because they do not wish to consider a pay reduction. When you ask them to do something slightly challenging they will stubbornly refuse: pay becomes an issue, long hours become an issue, being overworked becomes an issue. The irony is that they know about all of these challenges before becoming a doctor, yet they still choose this profession. The value in making sacrifices seems somehow misplaced in a profession that demands exactly that. Therefore, it is our responsibility to instil those values, not just for our medical students, but as a culture for all of our campuses. We need to nurture and cultivate passion in people and in humanity, engendering a passion to create a more just and equal society. We need to go back to the very principle of what medicine is all about, and how it became into being.

That is why I am very critical when I realise that appropriate values have not been holistically imparted to our students by "us". I think that the whole notion of being compassionate, and having passion in what they doing, making sacrifices for people ought to be the mainstay of the university, just like a gardener tending to his garden. In this particular context, by the year 2013 we should be able to reinstitute what we have lost in the course of

moving from the factory to a garden metaphor. Our progress should not be hampered by the number of staff who lack PhD qualifications and similar metrics. I am more worried about staff with bad attitudes and poor aptitudes. Such staff must be terminated as soon as possible.

To me, qualification is never an issue because we can always train people to acquire various competencies. It will not be a major barrier. The important factor is to change people's attitudes, mindsets, and willingness to undertake work on the basis of trust, honesty and sincerity, and not on the basis of material wealth. The types of factors will slow us down, and in fact may even lead to failure. It is very difficult to change people's attitude. We cannot send people for training to change their attitude, as readily as we send them to get extra qualifications with probable success. Worst, of course, are when both are absent!

The question of attitude and aptitude is crucial. Under APEX, we will start attitude/ aptitude testing with the 2009/2010 intake of new students that apply directly to USM. When they apply to join us, we will institute various criteria to evaluate their attitude and aptitude. We are keen to understand their academic performance, but we will have to go beyond just that. For example, traditionally if a student gets a 4-point GPA, they will automatically get to do medicine. Under the new system, we would not allow such a student to read medicine if they were to fail our aptitude and attitude evaluation. We will assess values in terms of a willingness to alleviate suffering and raise people's quality of life.

The time has come for us to characterise the kind of students we want to eventually become doctors, where this also applies to the rest of our subjects. All students must demonstrate the desired level of compassion, passion and interest in what they want to do and in what they wish to pursue as a profession. In this way, the university will emphasize education and talent development. Moving forward, all new staff will undergo similar evaluations.

***MJMS** : What are your plans to improve the related centres' and institutions' infrastructure? Five years seems such a short time to implement important steps to bring USM to the next level.*

Professor Tan Sri Dato' Dzulkifli Abd Razak : Under APEX status, we will have flagship programmes: advanced study initiatives that are meant to reflect the kind of cutting-edge knowledge that we want to fast track. These programmes will give high visibility to USM, and will also offer

relevance for the future. As soon as we decide what these initiatives are, the allocation of resources will be expedited and researchers will be able to control their own budgets. The level of bureaucracy involved will hopefully be minimal, if not totally eliminated. The choice of talent that is required will also be independent of the university's central administration, as long as it follows generally accepted guidelines. We were already experimenting with this concept when we created the Centre for Chemical Biology. This programme is the first of its kind in USM, and it will be fast tracked under our APEX status. Brain sciences will potentially be another such area. In other words, we will choose the fields that are not crowded but that are crucial to the future of our country. Another area is sustainability studies - something that is essential to our understanding of global warming, climatic change, etc. which is currently in its infancy. It is understood that these fast-tracked initiatives should raise the profile of APEX and motivate other universities to follow suit. All of these programmes will be transdisciplinary in nature, capturing all the arguments made before.

Other on-going scientific or art projects will continue to be supported depending on the type of activity. If the activity corresponds to the research-orientated KPI, support should be forthcoming. APEX will allow us to increase the number of academic staff to 5,000, up from 1,500. Significant investment will go into training, recruiting new talent and encouraging professionals to assume university lecturer positions. All new hires will need to demonstrate an appropriate attitude. By then, the USM population will already have been transformed to at least 50 per cent graduate students and 50 percent undergraduates. As the emphasis will be on research, all schools and departments must start to promote, create and generate more post-graduate activities in their own domain. This change needs to happen in the next 5 years, building up postgraduate courses in a manner that is pertinent to shaping the future of USM and bolstering the Malaysian higher education landscape for the 21st century. Ultimately, post-graduate students will make up two-thirds of the campus population.

In the nutshell, APEX is about creating our future, and not about doing the same thing repeatedly even though we may do it better each time. We are talking about what lies ahead in the education sector, and making it happen in the shortest possible time. We need to do a lot of thinking, a lot of forecasting and a lot of future-building (something USM has engaged in since May 2005) so that we can be precise as to our direction as the 21st century unfolds. That is our

main challenge. For this reason alone, we need to be brave in creating our Blue Ocean Strategy by writing our own rules and excelling and executing them without compromising our values. We must realise that "failure is not an option."

References

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Note

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