

Developing Professional Track towards Excellence in Academician's Career Path

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Abstract

A career in academics entails far beyond teaching. Being an academician is a very good job. The freedom to think creatively and learn is priceless. In addition, an academician working towards a PhD goes through intellectually stimulating experience to be shared. Having a PhD is a must to all academics since the PhD experience is about much more than learning to do deep work in some technical area of expertise and being constructively critical. The key is to figure out ways of moving between the different facets of the job without becoming too crazy. In another aspect, an academician is most likely to encounter his role model in teaching, research and professional service environments which are the platforms in pursuit towards excellence. In fact, these are the three main areas within which a faculty member must demonstrate excellence and achievement in order to be promoted: research, teaching and professional service. Indeed, there may be an array of promotion tracks to fit such different career paths; these tracks may have different requirements for promotion. It is critically important that the junior faculty member be familiar with the requirements of their particular track early in the course of their career. He should find out the relevant requirements and expectations for promotion and be thinking about these matters from an early point in his career, rather than near the end when the promotion clock is ticking. This paper also focuses on the significance of getting a PhD, sharing good lessons and experiences during doctorate training, and giving practical job strategy description and academic solutions for a career roadmap towards excellence. The paper is written from the perspective of the authors, the former who has survived the fast track promotion process from a lecturer to a full professor at quite an early age of 39 years old and the latter having promoted to senior lecturer within five years of tenure. In the earlier section of this paper, it attempts to answer the questions: What is academic excellence and what defines "success" in academic excellence? What is required for promotion? The questions of where young and new academicians are heading to and how do they get there are also highlighted by laying out a general career roadmap academic excellence plan and importantly, present strategies to deal with the potential pitfalls and avoid some of the bumps in the road towards striving for academic excellence.

Keywords: Excellence, Academia, Career path development, Fast track, PhD

1. Introduction

Academicians' achievements in local universities can be enhanced progressively faster. Across our nation, in cities, suburbs and rural communities alike, far too many academicians or lecturers are still not meeting the standards that will prepare them for the challenges of today and tomorrow. Being Institut Teknologi MARA (ITM) a highly reputable teaching university of the country for a few decades, producing several top nation present and future leaders, the government did not expect enough of her academics achievement and excellence in the past. Nowadays, with ITM being labeled as Universiti Teknologi MARA (UiTM), clear and high standards of academic achievement and discipline

are essential to prepare them for the challenges of the global society and information age while taking the university to great heights of excellence. These standards of excellence are important to help instills the excitement, knowledge and basic values, such as hard work, that will set UiTM academics on the right track. The current formation is based on a vision of outstanding scholarship and academic excellence that is capable of providing leadership in all fields of internationally recognized professional study. This serves as catalyst for greater strides in the development of the university and the nation.

In lieu of the above, UiTM academics are capable of meeting higher standards and perhaps assist UiTM to achieve a Research University (RU) status within a few years to come, if they have the courage and the vision to set the standards. Every academic staff must establish meaningful academic standards of excellence for what they should master in their teaching, research and professional service. Only with a standard measure of academic excellence can they have a guide for charting their own progress and build UiTM to generate, disseminate and advance knowledge within the ever-changing multicultural and technological context of the world. It has been observed that local public universities that set high standards to their academia have shown a difference in their academic achievement. It is therefore the objective of this paper to highlight the importance of being excellent in academic matters and how best the current young, vibrant, dynamic and progressive new breed of academics, scholars, knowledge innovators and paradigm bashers of UiTM can achieve their excellence in transcending traditional boundaries between disciplines of research. The significance of having a PhD is also highlighted with some insights of sharing good experiences in doing a PhD. This paper also provides a series of pathways for achieving outcomes necessary for improving the academic prowess of UiTM toward excellence. The continued use of Academic Excellence Plan as one of the strategies to stretch one's imaginations, creativity and visionary thinking is recommended for forward thinking academics to excel and secure future promotions to Professors.

2. Definition of academic excellence

The definition and requirement of academic excellence is broad. In our humble opinion, the university environment in which academics are encouraged to think critically and creatively is a contributing factor in determining the academic excellence and the academia. By web definition, academia is a collective term for the scientific and cultural community engaged in higher education and research, taken as a whole while academic means someone who has a scholarly background. On the other hand, an academician is an educator who works at a higher institution of learning, college or university. The focus on university assessments through the Key Performance Index (KPI) and "SSM" in Malaysia as the one true measure of academic excellence is slowly but surely limiting our young people's chances of experiencing any semblance of the success in academic life that is expected of them and that they believe university will provide for them. The academic excellence of a particular academician or lecturer is interrelated and has many facets, including the quality and composition of faculty, the quality of postgraduate training, the quality of the academic programs and the quality of students' experience. To be a great lecturer, the prevailing culture must demand excellence in all endeavors (Kamaruzaman, 2007a). That excellence can only be achieved when all parts of the University administration, faculty and staff are committed to the highest standards of performance. In today's world, academic excellence requires elements and experiences beyond those traditionally associated with universities. For example, an excellent education today requires an understanding of diversity and how diversity can enrich our learning and our lives. It also requires an understanding of how theory and practice meet, an understanding that can be enhanced through a rich array of service, outreach, and partnership opportunities. Nevertheless, academic excellence also requires state-of-the-art infrastructure and a talented and highly motivated staff.

In addition to teaching, several other "visions" must fit into the definition of academic excellence. A lecturer working on his or her applied research should include the idea of creative activity and basic research (scholarly and creative activity). It is always believed and emphasized in good classroom teaching that undergraduates must be creative enough to be excellent for a First Class Honors degree. Similarly, one must be able to differentiate himself or herself from hundreds of other lecturers in his own university in order to be excellent. He must be unique in quality and in the nature of his research and his personality too. There is no question of being preeminent in both academic excellence and research at the same time if one wants to. Part of his work must be identified and prioritized to achieve academic excellence. Once achieved in the ways mentioned, it needs to be publicized because academic excellence is one way of prominence and has to be externally validated either within the university or beyond. Some indicators are necessary to measure whether a lecturer has achieved his or her aspirations in academic excellence, and these indicators should be comparable to other national institutions. This is evidence from the way of appointment as UiTM's External Professor Panel for a Professor's promotion exercise since 2004.

3. Why does UiTM need a great academia?

For centuries, civilization has depended upon universities for a rich flow of ideas, innovation and graduates from a wide diversity of disciplines - from the humanities and social sciences to physical sciences, technology, and the professionals.

These intellectual and human resources have long been vital to UiTM's social, economic and civic success. They remain so today, when the need for ideas, innovation, graduates and not forgetting the academic staff is greater than ever.

A top-tier university will be a centre of excellence for the very best academicians - providing a broad, diverse population of lecturers with access to a rich teaching and research experiences and offering lifelong learning opportunities to traditional and non-traditional undergraduates alike (Kamaruzaman, 2007c). It will also be a centre of excellence for postgraduate and professional education and research - creating knowledge and innovation that fundamentally improve learning and the way people live. It will excel in the arts and sciences, dynamically enhancing the way UiTM graduates understand and experience their world.

One very important role for UiTM is to spur the Malaysian Bumiputra's socio-economic growth. Increasingly, our nation's most dynamic economies - areas such as Shah Alam and its vicinity should be connected to great research universities. There was a saying in The New York Times that, "If there is one never-absent factor at work, it is the proximity of a research university shifting from ivory tower to revving economic engine" (Goldberg, 1999) UiTM needs such a "revving economic engine" to succeed in the 21st century Information Age economy as it is a university that spawns innovation, generates new technologies and ideas, and produces talented graduates for successful commercial enterprises.

4. The making of an excellent academia

4.1 In research

What constitutes research? Theoretically, it refers to the inquiry activities of the faculty member and this definition of research generally does not reflect its reality in most institutions of higher education. For academics in research, productivity as measured in terms of publications and grant support, may outweigh all other areas when the time comes for promotion and salary negotiation. At its most basic level, one's goals in research have to include discovering, telling the truth, publishing (or perishing) and secure local as well as international research funds or grants (Kamaruzaman, 2007b).

Still, not all research activities are considered equally significant. For instance, writing textbooks or review articles may also be considered as some form of intellectual inquiry. However, although these kinds of activities demand a considerable amount of time and energy, they are not given equal weight in the eyes of promotion committees looking for evidence of achievement based on original scholarly work. Again, it all depends on what kind of track you are in. For individuals whose career focus is teaching, reviews and textbooks may suffice as evidence of scholarly activity. Indeed, a well-written and thoughtful review can sometimes change the whole direction of a field. Nonetheless an objective scoring listed below serves to guide those aspiring academicians to attain the journey of excellence.

Excellent in Research

- SSM mark of more than 80% for lecturers and Associate Professors and above 90% for
 - **Professors**
- Research grant
- Membership in research project
- Research impact on community and national development
- Research results in terms of number
- Number of post-graduate students
- Peer evaluation
- Research collaboration with local university, agency, and industry linkages
- Awards
- Miscellaneous as to conference/seminar/workshop/congress papers presented locally or

internationally

4.2 In teaching

Teaching generally includes actual in-class time working with students, as well as time spent preparing for class. It would also include mentoring in this category, although in many Malaysian institutions of higher education, there is no official way of quantifying the time spent on this important activity. Depending on the specific institution, such time could also include office hours as well as time spent revising old or creating new courses, leadership roles in training programs and other academic consultative collaborations within and outside the university. Although teaching is looked upon as an important and valued role in a faculty, it is a relatively under-funded mandate, that is, teaching does not bring in much salary and promotion support. While negative or absent teaching evaluations may hinder one's promotion,

outstanding evaluations by themselves are usually insufficient to overcome deficiencies in research productivity. However, it is still a mandatory duty not to be compromised and the listed scoring should suffice to help academician gauge his own teaching performance at the tertiary level.

Excellent in Teaching

- SSM mark of more than 80% for lecturers and Associate Professors and above 90% for Professors
- Student evaluation mark of above 4 out of 5
- Peer evaluation (within & outside faculty)
- Report from Head of Department
- Report from supporting faculty staff
- Teaching workload of a total of 6 credit hour per semester, number of BS/MS/PhD students
- Number and level of student's supervision
- Other contributions including as academic advisor, invited lecturer, award winner

4.3 In providing professional service

Professional service in the context of academia generally refers to service to the Faculty or University. What qualifies as professional service, again, varies greatly upon the specific institution. The degree of involvement expected of the faculty member usually varies according to the size of the institution. Hence, service refers to deliverables that are either tangibles or non-tangibles to the particular department of which the faculty is a member. Such duties might include participation at departmental, faculty or university-level committees. A university such as UiTM expects professional service also to include consultancies, leadership in community service activities, and the professional community. Another example from the first author's faculty in UPM includes meaningful participation in forest engineering related professional organizations, such as the International Union of Forestry Research Organization (IUFRO), Malaysian Remote Sensing Society (MRSS), Malaysian Institute of Foresters (IRIM) or non-academic bodies such as Parents-Teachers Association (PIBG), is not only gratifying to the individual, but also is favorably viewed by promotion committees. It is important to become known outside of one's university, local and international community, and participation in professional local and international society activities which can be a useful way of accomplishing this. To some, professional service may not be viewed as either creative or scholarly (Yeager, 1956). With different requirements in several institutions, the activity of professional service has led to the creation of parallel tracks within research-dominated institutions. However debatable this aspect can be, professional service has provided pertinent contributions that encompass both research and teaching activities at tertiary level. In Malaysian institutions of higher education, it is an important criterion towards academic excellence.

Excellent in Professional Services

- SSM mark of more than 80% for lecturers and Associate Professors and above 90% for Professors
- Consultancy services in terms of value, number of projects, client feedbacks
- Advisory services in terms of numbers, client feedbacks
- Extension services
- Student activities in terms of being a student advisor, residential college fellow, university committee member, international committee member
- Membership in professional and non-professional bodies such as Reserved Officer Training Unit (ROTU)
- Miscellaneous including letters of contribution to the university and country

5. A doctorate as an important component of an academia

There are many definitions and views of a PhD. A PhD is a qualification which one can obtain after carrying out independent research for a period of at least three years. In order to start a PhD course, an academician must have obtained a first degree at an accredited University and in most cases he should obtain a relatively high classification such as First or Second Class Upper equivalent. Several PhD courses consist almost entirely of independent research in a specialized area. There are a few lectures, but they are mainly aimed at teaching a candidate how to use specialized equipment. At the end, he submits a dissertation (thesis), a document up to 60,000 words in length, which is normally assessed by two Examiners. The Examiners decide whether or not the student deserves to become a "Doctor of

Philosophy". There is an Oral Examination, involving one External Examiner (a national or international authority in the specialized field of the thesis) and one Internal Examiner (usually someone in the department with at least some knowledge of the field). The latter cannot be the Supervisor, who is not involved in the examining process and is not permitted to attend the oral. Provided you pass, you can put "Dr." before your name and by that stage you hopefully will have a good idea of how to go about serious research.

There are many reasons people are trying to get a PhD. The author in his paper entitled "The Concept of Research", PhD research allows one to gain appreciation for the practical applications of knowledge, and to step outside his "own world" and learn about the theories, tools, resources, and ethical issues that scholars and professionals encounter on a daily basis. One will learn how to formulate questions, design plans to find answers, collect and analyze data, draw conclusions from that data, and share one's findings with a community. It gives the candidate an opportunity to connect with the best faculty or school at the universities he intends to pursue his PhD study. Doing a PhD research will also make an academician an informed consumer of the research that he encounters on a daily basis: he will be able to evaluate the information presented as a citizen of this complex society, and make informed decisions about all kinds of public policy issues that affect everyday life. And finally, research prepares the candidate for the world beyond the University, by honing his independent thinking and creativity, time-management and budget skills, and confidence in his academic and career goals.

Some of the more general things an academician would get include a sense of confidence in the power of rational thought and the range of its applicability. Everything in life is a problem of some sort of the other. How often do we think about it that way, and approach methodically the job of solving it? After a PhD one should have the inclination and ability to research anything under the sun, whether it is physics, chemistry or biology, and the expectation that one will understand it. A PhD candidate should get the confidence and inclination to question all that is around him and seek out new ways of doing it or seeing it. He should be more likely to ask why things are done a certain why, and how it could be made better.

A PhD should give the researcher the confidence that he can jump into a new area, pick it up quickly, and have something interesting to say about it, even if other people have looked at this area for a long time. More than depth in any one area it should give him the courage to jump from area to area. He might be able to increase his appreciation for creativity, in other people and in all areas of life. In addition, he might also view art differently, or think differently about music he hears, more appreciative of what it takes to do things and how it departs from the previous works. The researcher should learn to value creativity and seek it out. It will instill a sense of taste and a critical sense. It should make him unwilling to accept the common standards and norms, and to put them to the test of his own intellect and opinions. Further, the researcher should naturally find himself questioning things of which he is willing to contradict conventional wisdom. That does not mean being a rebel just for the sake of it; an academician is too mature for that. It just means being constructively critical.

6. The challenges to overcome in striving for academic excellence

Majority of the young and new UiTM academicians are far from ideal in terms of teaching and academic excellence. However, today with the present UiTM's Vice Chancellor's great philosophy, vision and mission, UiTM is perceived as having great young staff and good, but not really outstanding research academics. UiTM may be viewed as big and perhaps a little bureaucratic but with a strong spirit, particularly among the young academics. Allowing for many exceptions to such a gross generalizations, that perception is fairly close to the mark, so where do you start?

Any review of the comparative data makes it clear that the focus must be on building academic excellence. For while UiTM needs to continuously improve in many areas, it will never be a truly great university without dramatically enhancing the reality and perception of the teaching, learning and research the academics are going to do - and without the research and service activities that flow from achieving excellence in their endeavors. Although much has been accomplished in recent years, your academic reputation has not appreciably improved compared to other local universities especially UPM. The great move by the Institute of Leadership and Quality Management (iLQaM) of UiTM to have such a module today, for instance one that is designed to move UiTM into the top-tier of Malaysia's public research universities (RU) by the year 2010, with some programs ranked in the top 10 in their respective disciplines. This is a bold objective and the essential starting point of an academician's plan. It is an important benchmark in reaching UiTM's ultimate goal. Without the support of truly great academicians, UiTM will not probably achieve her missions and goals towards a RU in the target time.

In addition, you will not achieve academic excellence without explicitly defining expectations for a strong support to improving the university research and teaching infrastructure, with particular attention to research funding assistance and availability. The university management must create a campus environment that contributes to and is consistent with academic excellence. Profiles of leading universities such as Yale or Harvard reflect academic strength that is broad and deep - not simply in a few disciplines but throughout the institution. They also offer market-competitive

compensation for their faculty and staff. Besides, they recruit and maintain the finest possible faculty and staff and provide faculty and staff members with competitive compensation.

7. Strategic and academic initiatives toward academic excellence

UiTM can become one of the world's truly great universities with undivided support from young energetic and dynamic inspiring ambitious people as the excellent team of academics. UiTM has the potential to achieve her goals and missions and can improve significantly with the consistent motivating modules given by the Institute of Leadership and Quality Management that helps to enhance quality and credibility of the faculty members. The Academic Plan of high achievers will be the first iteration of what should be an ongoing academic excellence planning process, designed to launch the academician towards his ambitious goals. In this section of the plan, he has to address the following questions, namely: (a) why do you need to be a truly great teaching and research academician? (b) how far are you from that ideal? (c) what are the challenges must you overcome to attain your goals? (d) what are the internal and external factors that will influence your journey towards academic excellence?, and (e) what are your core strengths? To create a plan that enables one become an academically excellent lecturer, he needs to assess where he stands today - comparing his current position with his peers, including a number of inspirational peers. The academician must have a benchmark for his general comparability in academic excellence. While some of these statements underscore the rigorous challenge, the path or roadmap to academic excellence must begin with a candid acknowledgement of one's current position (Kamaruzaman, 2007a). The Excellence Academic Plan of high achievers is a product not only of one's vision and aspirations, but also of the environment in which one operates. This environment includes broad economic and societal trends as well as the pressures, opportunities, and resource constraints that confront higher education today. In the preparation of a career roadmap toward an excellent academic plan, these three core elements were fundamental. These strategies are to:

7.1 Build a world-class research lab towards a world-class research of cutting edge sciences and technologies

Academic excellence begins with high-quality laboratory facilities. It is to be noted that excellent academic member will not only enhance the University's teaching and programmatic reputation but also attract the highest quality students at all levels. More than any other single factor, attracting and keeping exceptional faculty members will help UiTM become a great public university. It would be an advantage for UiTM to have a few excellent faculty members who have attained the highest honors. The ability to hire a dozen or so exceptional senior faculty member of international acclaim over the next five years will significantly enhance UiTM's reputation and complement her efforts to hire the very best faculty member at every level.

7.2 Develop postgraduate academic programs and research centers that define UiTM as one of the nation's leading public university

Academic excellence requires that the quality and reputation of the academic programs rival those of your benchmark local institutions. The newly developed postgraduate program must focus in areas of strategic importance. A very good example to demonstrate is when the first author developed a postgraduate program in Remote Sensing/GIS a year after his return from Cranfield with a PhD in Remote Sensing. He started with only three students in the first year and now the program is still alive with more than 15 students per intake every year. By continuing to "invest for success," one will create top-quality academic programs that will move one towards parity or better with the peer institutions. The academician must also make an attempt to invest in research space. In one quotable case, the author went all out to the Vice Chancellor's level to request for a remote sensing/GIS laboratory space for him to excel in his academic career path. It has been well remembered that his application for a little space in his Faculty to provide the infrastructure needed for his modern research was rejected three times despite giving all sorts of explanations to the Head of Department and the Dean at that particular time. This particular lab is still in active operation and has been commercialized since 2004 with contract research funding from both government and private agencies. It is greatly believed that with enhanced research facilities, one will be better able to produce excellent research products in addition to increase the volume of funded research.

Based on his recent EU's *Erasmus Mundus* Visiting Scholar in University of Lund, Sweden, University of Warsaw, Poland, University of Southampton, England and The International Institute for Geo-information & Earth Sciences (ITC), The Netherlands, such great research universities typically house a number of nationally prominent research centers that flourish outside traditional disciplinary boundaries (Kamaruzaman, 2007d). These centers initiate cutting-edge research and educational opportunities that are oriented around important "real world" problems rather than disciplines. Often, such world-class centres connect with the community and the industry through outreach and technology transfer. Strong multidisciplinary and interdisciplinary centers also help attract and retain exceptional faculty and attract and retain to graduation talented students. UiTM can be one of the many major research opportunities of the future, particularly in the international arena; which will require such multidisciplinary collaboration from excellent academicians of the future. Quality research space and equipment must be available to effectively recruit and retain excellent and outstanding faculty members and to develop multidisciplinary institutes and centers.

7.3 Help build UiTM's future and vice-versa

Before the faculty member can really assist the University build his future, his work environment must first be improved by UiTM top management. To be as productive as possible in his research, and perform at an outstanding level in the classroom, you first need a supportive environment and a minimum of impediments. To improve the faculty member work environment, UiTM should recognize work load efforts of faculty members who supervise large numbers of doctoral students. UiTM through IDRC has been encouraging faculty entrepreneurship through opportunities for seed grants and other small grants to faculty, particularly in areas where external funding sources are limited. Such golden opportunities must be taken up by the faculty member to scale up his research towards academic excellence. Young academic staff should tag on with senior faculty members either within or outside the university. For instance, a young faculty member from the Faculty of Engineering, UiTM managed to prepare two papers for journal publication out of her two short-term small grants from IDRC with the first author's assistance as a member of her research team. In short, wherever possible, try to identify and work closely with well established professors outside the University for research collaborations and high impact journal publications (Kamaruzaman, 2007d). By having papers published in high impact or citation indexed journals, the faculty member is actually helping to build UiTM's future as one of the Malaysian potential world-class universities.

8. Conclusion

Let us academicians face it. Academic excellence is a long haul but can be a fast track with carefully planned strategies and most critical, the forward thinking. The traditional three-year PhD program just barely manages to lay the foundation for an academic career. Often, young academicians today are expected to simply absorb the necessary PhD lessons and experiences to succeed in academics without these lessons ever being clearly spelled out. Without a clear understanding of the academic process, the demands placed upon a junior or even a senior faculty member can seem overwhelming. This informational roadmap is therefore designed as a guide; resource and checklist to help new UiTM academic staff makes the most of one's PhD and post doctorate years an enjoyable and beneficial one. The academic excellence plan is a must and the responsibility of those high academic achievers striving for excellence. Success depends on having a job that insures adequate protected time to perform those activities required for promotion. Given the complexities of the promotion process, it is imperative that an academician has a clear understanding of what his track is and the institutional requirements for promotion within that track. The specific answers and definitions in each area will differ from institution to institution. Hopefully, this manuscript provides basic understanding of these concepts and one will be armed with the information needed to begin discussing job description with the Head of Department and Dean who will be "standing up" for his ward at the higher committee levels. The views shared in this paper here are entirely personal. They do not reflect those of the university, the department, or other faculty. They are not only our views but also about personal academic experiences. From the first author, it is about the post PhD research in his area of specialization, post-doctoral and visiting scholar and professorial experiences overseas and finally, his true life fast track experiences in striving for full Professor Tenure in his University.

References

Goldberg, C. (1999). Across the U.S. Universities is Fuelling High Tech Economic Booms. *The New York Times*, October 8.

Kamaruzaman Jusoff. (2007a). A Roadmap to Academic Excellence. An Invited paper presented at the Basic Teaching Course, 5 June 2007, Auditorium 1, Level 4, Institute of Leadership & Quality Management (iLQaM), Universiti Teknologi MARA, UiTM Shah Alam, Selangor, Malaysia. 20p.

Kamaruzaman Jusoff. (2007b). The Concept of Research. An Invited paper presented at the Research Methodology Course (Science & Technology), 7 May 2007, Auditorium 1, Aras 4, Institute of Leadership & Quality Management (iLQaM), Universiti Teknologi MARA, UiTM Shah Alam, Selangor, Malaysia. 24p.

Kamaruzaman Jusoff. (2007c). An Introduction to Research Paper Writing and Publishing. An Information Paper Presented at the Journal & Seminar Paper Writing Workshop, Forestry Department Headquarters Peninsular Malaysia, 7-9th. March 2007, Palace Beach & Spa Mines, Seri Kembangan, Malaysia. 13p.

Kamaruzaman Jusoff. (2007d). Latest Developments in Research and Applications of Airborne Hyperspectral Imaging. A Public Research Lecture (in power points) presented to The International Institute for Geo-information Science & Earth Observation (ITC), The Audtorium, 26 January 2007, ITC, Enschede, The Netherlands. 164p.

Yeager, W. A. (1956). The Service Load of Faculty Members in Education Educational Research Bulletin Vol.35 No. 2 February 1956 Laurence Erlbaum Associates Inc.