Broadening Impact to Create Our Future

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A great university is committed to organizational excellence at all levels and departments, so as to provide professional support to sustaining excellence in teaching, research, and professional service to society. Through its research and educational programs, as well as various campus activities, a great university must also develop leaders for all sectors of the society and prepare them to address the challenges facing the community and nation.

The task of the university”, according to philosopher Alfred North Whitehead, “is the creation of the future, so far as rational thought, and civilized modes of appreciation, can affect the issue”. One may also recall another famous saying in 1943 by Winston Churchill that “the empires of the future are the empires of the mind”.

The activities that comprise campus life should be designed appropriately to create a dynamic energy that enriches students' lives and provides the benefit to the entire University community in their learning and discovery endeavors, as they create and invent new futures.

For undergraduates, the notion of completing Junior College or the Polytechnics and then going on to a university for, if not life-long learning, at least one degree and some post graduate study, shapes the aspirations of the vast majority of youths.

For some, their aspirations are limited by a merely pragmatic, instrumentalist view of undergraduate degrees providing a meal ticket, a narrowly prescribed set of skills, a higher salary, on average, than non-graduates earn, and a powerful hedge against joblessness. For them, a brief and single “pass” may amount to only what a university may represent. Such naively clearly benefits no one.

Today’s undergraduates devote no time for thinking about any future other than their own.

The emergent realities of a rapidly-evolving, knowledge-based future accelerated by globalization to a more competitive and challenging world will demand a radical re-think about the value of higher education.

The university has become a key institutional pillar most capable to build the new competitive advantage founded on intellectual infrastructure and public value of the human intellectual assets. Universities will need to respond to the challenges of the knowledge era by re-examining and strengthening their roles in the areas of knowledge dissemination, creation, and application.

University graduates in the knowledge era have to be flexible and adaptable to a context where the dynamic change is the only constant; they have to become lifelong learners to be able to adapt to the fast pace of change and constantly upgrade their skills and knowledge. They will confront the reality where their knowledge and skills rapidly become obsolete as knowledge and product cycles become increasingly smaller.

An effective university graduate will need analytical and problem-solving skills, and inter-personal and communication skills that will enable them to work with others. Leveraging and synergizing with the competencies of others increasingly make sense at a time where no one person has the ability to quickly identify and engage the subtle changes in the strategic operating environment for decisive actions.

They must also be creative and entrepreneurial, able to invent new ideas and products that will create and capture new markets.

Given the explosion of knowledge and technology, it is no longer possible for universities to teach its students all there is to know in order to be ready for the workplace. Universities can only teach their graduates to “learn to learn” and develop new social competencies conducive for personal and professional.

University education must also prepare students for a world where there will be new jobs which have yet to be invented and challenges that are unimaginable today. Learning about the future is best achieved in a cross-disciplinary and multi-disciplinary mode within the knowledge structure and mode of inquiry of the respective disciplines.

In short, universities have to expose undergraduates to a broader range of skills, in order to prepare them for workplaces that need a multi-disciplinary and systems approach to problem-solving.

Universities can no longer just focus their students to solve past problems which most likely will never recur. Faculty members likewise must reach out beyond their hitherto comfortable “ivory towers” to immerse with industry, businesses, community and society so as to maintain their continuous relevance with regard to the context of knowledge applications.

A broad curriculum also mean that faculty should employ thoughtful and creative pedagogy that is challenging, rigorous, and features learning experiences that especially characterize the specific field of discipline.

Professors can introduce students to characteristic ways of thinking, distinctive methods of inquiry, and fundamental conceptual frameworks as well as major achievements in the field. They should increase intellectual curiosity and initiate continuing interest in the subject matter.

Research impact refers to the evidence of relentless breakthroughs in new areas of scientific discovery and the applications of knowledge for the benefits of business, industry, community and society. While publications output and citation rates reflect well on the quality of university researchers, they are however measures of personal achievements instead of being measures of research impact.

It has often been said that there are no useless discoveries; there are only those whose usefulness has yet to be discovered.

But is it one thing to claim that all this research activity is generally useful; and quite another thing to prove that it makes any impact? Does (Can?) university research produce any real social benefit?

Consider the impact of just one Research University: the Massachusetts Institute of Technology (MIT). A 1997 study by the Bank of Boston Economics Department, the first to measure the job impact of a single research university, is based on an intensive study of MIT. It concludes, “If the companies founded by MIT graduates and faculty formed an independent nation, the revenues produced by the companies would make that nation the 24th largest economy in the world. The 4,000 MIT-related companies employ 1.1 million people and have annual world sales of $232 billion. That is roughly equal to a gross domestic product of $116 billion, which is a little less than the GDP of South Africa and more than the GDP of Thailand.

Eigthy per cent of the jobs in MIT-related firms are in manufacturing (compared to 16 per cent nationally) and a high percentage of products are exported . . . . The MIT-related companies employ more than 8,500 plants in 50 states.”
Universities have to be able to demonstrate the dynamic impact of their research’s contributions to economic, social and national progress and well-being.

University research is a powerful stimulus for economic development, leading to measurable impacts in both GDP and employment. University research has the potential to produce breakthrough advances that can fundamentally alter our economic growth and quality of life. Frank Restes, President of the University in his book “The Creation of the Future,” has also illustrated how research can transform economies and societies. And although not all research leads to such world-changing results, it does produce a steady stream of new ideas and technologies. These, in turn, lead to innovation and continuous improvements in productivity and quality of life. University research also has an economic impact by equipping students with the ability to generate new ideas. Companies will benefit by hiring graduates with knowledge and research skills. University graduates help firms become more efficient and productive, and help them to introduce new products and processes.

The significant measures of the impact of University research impact are the measures of the personal research prowess and writing skills of its researchers. The impact measures of research embrace the evidence of innovations, patents, venturing, licensing, high-level consulting and contracted research projects.

A fresh perspective to broaden the impact of university research will consider the role of research and research outputs that are indispensable evidence of broad business, community, societal and national impact:

(a) Venturing
Refers to the creation of new commercial, as well as not for profit, ventures by university professors. And sometimes together with their students. These ventures usually emerge from an opportunity arising out of a professor’s, or some professors’, accumulated professional and research experience rather than from one particular discovery or technology package. The emergence of the venture needs not be, and often is not, influenced by the university technology transfer agencies.

(b) Consulting
High-level consultancy usually have significant impact on policy formulation in both the private and public sectors. The results of consulting could also lead to job creation, especially when it is associated with the commercialization of innovations.

(c) Contract Research
Contract research and collaborative projects are a significant evidence of research excellence. They also promote direct communication between researchers in universities and researchers in government and industry sectors. The extent of knowledge exchange (both ways) is sensitive dependent upon the nature of the relationship. Longer-term relationships and ones of a program rather than short project character have greater impact because they allow for development of means of translation between the distinct milieus. Thus, long-term activities including industrial research chairs and research consortia are usually the most productive and have the best impact.

(d) Spin-off and Technology Transfer
These refer to the formation of a new enterprise, or licensing to an established firm, based on specific outputs of a research project such as a patentable technology or a focused technology package. Some studies suggest that this is a factor comparable to the economic impact of consulting and of contract or collaborative research.

(e) Policy Research and Analysis
A major impact of research done in universities is felt in policy analysis and formation in both public and private organizations. Professors should participate in external policy formation. Policy advice usually has frequently innovative outcomes.

The future is yet to be determined. As we broaden our curriculum, and adopt fresh mental perspectives, in order to broaden our impact on businesses, community and society, we will in fact be embarking on a journey of future creation that is within our grasp.

Our milestone indicators are the following “ships”:

(1) Scholarship: The creation and application of knowledge, with an emphasis on scholarly inquiry, research, experimentation, imagination and creative production.

(2) Entrepreneurship: The creation of employment opportunities for discovery, innovation and the creation of new business ventures.

(3) Citizenship: The ability to apply knowledge and skills for responsible community life and action. Both faculty and students must commit to active public engagement and ethical purpose.

(4) Stewardship: The responsibility of the university to carry out its unique role in society, which is to promote intellectual inquiry. Faculty members of the university community are stewards of knowledge and entrusted to instill in their students an appreciation for the responsibilities that accompany education.

(5) Leadership: Motivating faculty and students to take actions that would not otherwise have been taken. Leadership is measured by the extent to which an individual or groups of individuals can influence and energize the ideas, actions and capabilities of others toward the betterment of society, and the creation of a better future society.

(6) Partnership: Mobilising faculty and students to work collaboratively to address complex issues and problems, both within the university and beyond the boundaries of the university campus. A university cannot expect to be able to provide problem solutions by working in isolation. It can only do so by interacting with others. By working in partnerships, faculty members will gain an understanding of the need and challenge of what can be accomplished together with businesses, industry and the community that could not have been accomplished alone.

In closing this essay, it is fitting to recall an observation by Senior Minister Lee Kuan Yew some 37 years ago when he addresses a Youth Leadership Meeting: “It is amazing the number of highly intelligent persons in the world who make no contribution at all to the well-being of their fellow-men”. Impact is indeed the only justification of scholarship and learning.

“Wealth flows directly from innovation, not optimization; that is, wealth is not gained from perfecting the known, but by imperfectly seizing the unknown.”

Kevin Kelly

“Knowledge is not enough; we must apply. Willing is not enough; we must do.”

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