

RESEARCH CULTURE IN A HONG KONG-BASED WORLD-CLASS UNIVERSITY: A CASE STUDY

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ABSTRACT

There is a widespread desire among universities to achieve a world-class status. But what does it mean to be a world-class university? Currently, there are a number of award-giving agencies that recognize the top universities, however, each using different criteria. While they have different set of criteria, one common factor is excellence in research. This study examined the research culture of one university in Hong Kong to determine what makes it a world-class university. The study made use of case study design, with data coming from multiple sources, including interviews with University administrators. Results indicate that this university gets much of its funding from government and external agencies and individuals that supports its teaching and research. It has a wide range of initiatives and incentives for developing centers or areas of excellence, for developing its actual and potential areas of strength, for enhancing quality and for building capacity in scholarship, for attracting fresh research talents, for paper presentations, and for recognizing outstanding research through awards and grants. It has Research Committee that handles research policy issues, mechanisms for research project selection, funding and monitoring, and development of multi-disciplinary research. There are lessons for other universities that also aspire to become world-class.

Keywords: world-class university, research culture

Introduction

There is a widespread desire among universities to achieve a world-class status. But what does it mean to be a world-class university? Becoming a world-class university is not achieved by self-declaration; rather, elite status is conferred on the basis of international recognition. In the past, the process involved subjective qualification, mostly that of reputation, wherein no direct and rigorous measure was available to substantiate their superior status (Salmi, 2009).

At present, there are a number of award-giving agencies that recognize the top universities, however, each using different criteria. While they have different set of criteria, one common factor is excellence in research. Salmi(2009) said that world-class universities are recognized in part for their superior outputs, that is, aside from producing graduates who are in demand in the job market, they conduct leading-edge research published in top scientific journals and in the case of science and technology-oriented institutions, they contribute to technical innovations through patents and licenses. For example, the QS World University Rankings considers among others, citations per faculty while the Academic Ranking of World Universities (ARWU) puts premium on the number of highly cited researchers in 21 broad subject categories, number of articles published in journals of Nature and Science, and the number of articles indexed in Science Citation Index Expanded and Social Sciences Citation Index. The Times Higher Education World University Rankings (THES), on the other hand, takes into account the volume, income and reputation of research and the citations/research influence of the university.

Furthermore, Salmi(2009) indicated that the highest-ranked universities are the ones that make significant contributions to the advancement of knowledge through research, and make research an integral component of undergraduate teaching. He also indicated that there are two critical factors that should be present to facilitate becoming a world-class university. First is the external factor, particularly, the role of the government and the resources that it provides to the university. He stressed that the government funding is important to support its research activities as well as the establishment of research centers, laboratories, and other facilities. Second is the internal factor, specifically the institution itself and the steps it takes to make itself into world a class university. This entails having strong leadership, a bold vision of the institution's mission and goals, and a clearly articulated strategic plan to translate the vision into concrete

programs and targets.

One comprehensive research university in Hong Kong has consistently ranked in the upper tier of the world university rankings. It ranked top 50 in the 2010 QS World University rankings, top three in Hong Kong, and top 10 in Asia. In the 2010 QS Asian University rankings, which employs a different methodology, it came among the top five. It was also ranked top 50 worldwide in the World's Best University: Top 200 by U.S. News & World Report. Thus, it would be interesting to know what makes this University a world-class research university and what it takes to boost its research culture.

Statement to the Problem

This study examined the research culture of one university in Hong Kong to determine what makes it a world-class university and to see how other universities can learn from it.

Methodology

The study made use of a single descriptive case study design. Data for this study were gathered from multiple sources, such as documents, brochures, handbooks, websites, and reports. Interviews with selected University administrators were also conducted.

Framework of the Study

This study examined the research culture of one Hong-Kong based university based on Salazar-Clemen and Almonte-Acosta's (2007) framework. They stressed that attitudes and values concerning research within the institutional and organization levels affect research productivity. They identified eight indicators of a supportive research environment, which they adopted as the operational construct of research culture. These indicators include the following:

Institutional research policy and agenda – includes the presence of research agenda based on the institution's philosophy, goals, mission, and vision, as well as its research emphasis and strategies for supporting and promoting research;

Departmental culture and working conditions – refers to departmental research programs and strategies designed to encourage and sustain research productivity;

Budget for research – pertains to the funds allotted for research and includes ability of the institution to tap external sources and obtain research grants;

Infrastructure – includes the provision of a research unit, adequate research services, and facilities in different disciplines for the conduct of research;

Collaboration with and access to research professionals in other institutions – refers to the ability to provide means for linkages with other institutions in order to create intellectual synergy;

Policies and guidelines on research benefits and incentives – pertains to the rules and procedures on the granting of financial and non-financial rewards for research;

Research committee – refers to the research monitoring body that screens the types of research conducted, and looks into ethical dilemmas involved; and

Publications – consists of the quality and quantity of research produced as evident in the number of published researches, awards obtained, and patents, etc.

According to Salazar-Clemena and Almonte-Acosta (2007), research culture is concerned with the dynamics of the interrelationships among three domains. Domain 1, the Trifocal Function of the University, comprises the university faculty's trifocal task of teaching, research, and community service or extension. Domain 2, the Individual Attributes and Output, refers to the knowledge, skills, values and attitudes that the faculty members possess relative to the conduct of research. Domain 3, the Institutional Attributes and Policies, refers to the policies set by the university for the purpose of developing a research orientation. Research culture involves the interaction among these three domains. The nature and extent to which faculty members focus on each task (Domain 1) is influenced by their own perception of these tasks and their output is based on their knowledge about producing research (Domain 2). Institutional attributes and policies (Domain 3) influences the nature and extent of research productivity (Domain 2), which in turn paves the way for the improvement or changes in Domain 3. Lastly, the faculty members' research knowledge and skills (Domain 2) as well their performance of their trifocal task (Domain 1) should also influence institutional policies (Domain 3), in the same way that institutional policies affect the other two domains. They also cited the role of

the governing body of education department in policy formulation at the institutional level. The interpretation of its directives, however, is based on the context of the institution, and thus, are open to interpretations, which is done for the interest of the institution and the faculty members.

Results

One indicator of a research culture is the presence of research agenda that are based on the University's philosophy, goals, mission and vision, as well as its research emphasis and strategies for supporting and promoting research (Salazar-Clemena and Almonte-Acosta, 2007). This is true for this Hong Kong-based world-class university. This university highly supports scientific inquiry, critical thinking, innovation, and creativity among its faculty. Its mission statement indicates that it seeks to assist in the preservation, creation, application and dissemination of knowledge by teaching, research and public service. It envisions itself to be acknowledged locally, nationally and internationally as a first-class comprehensive research university whose bilingual and multicultural dimensions of student education, scholarly output, and contribution to the community consistently meet standards of excellence ("Mission & Vision, Motto & Emblem," 2012).

To meet its mission and vision, as well as to respond to new challenges in the age of globalization, the University continuously reviewed its management structure, policies and practices, re-defined its strategic priorities, and mobilized resources. For one, it identified five areas for focused research investment and expanded their network of collaborations with cross-border and international partners. Its 2006 Strategic Plan also included the advancement of scholarship as one of its priority areas (Lau, 2009).

Another indicator of a rich research culture is the presence of departmental research programs and strategies designed to encourage and sustain research productivity. This University has always adopted a liberal policy on research undertakings that allows breadth and depth. Research activities in this University cover dimensions laterally to encompass all subjects offered, vertically to integrate staff research with teaching, and longitudinally to range from upstream research to midstream development ("Research," 2012). It prides itself with its research undertakings that have greatly contributed to society as a whole.

This University has adopted in its Strategic Plan 2006 the strategy of focusing its research investments in five already distinguished fields of academic enquiry within the University. They are: (1) Chinese Studies, (2) Biomedical Sciences, (3) Information Sciences, (4) Economics and Finance, and (5) Geo-information and Earth Sciences. This University aims to be the premier international center of Chinese Studies in Hong Kong, focusing on five sub-areas, namely language, literature and performing arts; heritage and history; social and regional developments; political and legal developments; and public health and environment. In the field of Biomedical Sciences research, it straddles the conventional boundaries of academic disciplines and addresses health issues from the molecular to the societal level, contributing to progress in medicine, public health, and bioscience. In the field of Information Sciences, it seeks to create and disseminate cutting-edge knowledge and technologies that have profound impact on the academia, the industry, and the society. In the field of Economics and Finance, it seeks to develop advanced knowledge on the Chinese economy, corporate finance, and the emerging financial markets of China and Asia. Lastly, in Geo-information and Earth Sciences, the strategic development of a laboratory for tropical monsoon environmental remote sensing through education, cutting-edge research, providing scientific solutions, and technology transfer will greatly assist in the enhancement of life, the environment, and the economy in the region.

The University was also granted by the University Grants Committee (UGC) to serve as research centers for five of the 16 selected Areas of Excellence. These are (1) Centre for Research into Circulating Fetal Nucleic Acids, (2) Chinese Medicine Research and Further Development, (3) Centre for Plant and Agricultural Biotechnology, (4) Institute of Network Coding, and (5) The Historical Anthropology of Chinese Society.

One of the requirements to be able to create a rich research culture is abundant resources and funds for research. In the case of this University, about one quarter of the government's annual allocation to the University in the form of block grants goes directly or indirectly to research. The University also relies heavily on different external funding sources to support research activities.

For School year 2008-2009, it was granted a total of HK\$525million for research projects. A bulk of this research fund came from the Research Grants Council/University Grants Committee (HK\$204.24M or 38.9%) and the rest from external funding agencies, such

as industry (HK\$109.96M or 20.86%), government departments and agencies (HK\$86.88M or 16.55%), charitable, trust and individual donations (HK\$74.88M or 14.26%), Information and Technology Fund (HK\$41.50M or 7.9%), and Quality Education Fund (HK\$7.94M or 1.5%). For 2009-2010, the Research Grants Council allotted a total of HK\$127.47M for 184 research projects in the form of competitive grants.

Presence of a research infrastructure is an important component of a research culture. The University prides itself with various facilities and resources to support its research activities. For one, its University Library System comprises seven libraries, with almost 2.5 million holdings (volumes), 1,300 periodical titles, 100,000 electronic journals, and 580 electronic database. Its campus network is also impressive, providing on-campus and off campus network outlets and Wi-Fi access.

Furthermore, the University has 27 research institutes, 4 state key laboratories, and 32 joint research units. Apart from the major institutes for interdisciplinary research, there are many smaller research/consultancy units set up under the auspices of individual faculties and departments to promote research in various subject disciplines. It is known as the world leader in various areas, which include (1) non-invasive prenatal testing theory and method, (2) improvement of rice strains with biotechnology, (3) development of the world's smallest Bluetooth communication module, (4) a network coding theory that revolutionized data transmission and brought about a paradigm shift in network applications, (5) the world's highest-resolution virtual human, (6) using computer navigation for bone tumor surgery, and (7) remote sensing science.

With regards to research collaboration, the University provides opportunities to its academic staff to undertake research and consultancy and collaborative projects with industry. It also hosts over 150 visiting delegations from abroad each year, many such visits leading to collaborative teaching and research projects. Frequent visitors, including Nobel Laureates, Consul Generals, eminent world scholars and figures, would also share their insights and wisdom with staff and students at the University as well as the general public.

The old saying "Publish or Perish" does not ring true at this University, where incentives for research abound. According to Prof. Henry N.C.Wong (as cited in CUHK, 2008), Chairman of the Research Committee, there is a whole suite of initiatives geared towards supporting research in this University. He said that the University's incentives consist basically of money (or help in attracting money) and honors. The

University's most important incentive scheme is the Focused Investments schemes, the funding of which is to be used mainly for developing centers or areas of excellence, for developing the University's actual and potential areas of strength, for supporting activities that are external grants normally fail to take into account, and for enhancing quality and for building capacity in scholarship. There are also incentives for attracting fresh research talents, particularly research assistant professors and postdoctoral fellows. The University also supports external funding applications, particularly applications to the Research Grants Council's General Research Fund as well as presentation of papers at conferences and seminars in Hong Kong and overseas. Furthermore, the University recognizes and encourages outstanding research through Research Excellence and Young Research Awards and grants of HK\$100,000 or HK\$200,000 (CUHK Newsletter, 2008, May 19, p. 1).

With regards to the presence of a research monitoring body, the University has established a Research Committee which is responsible for studying research policy issues and making recommendations, creating conditions conducive to quality research, setting up mechanisms for research project selection, funding and monitoring, and fostering the development of multi-disciplinary research at the University. Administratively, there is a Research Administration Office (RAO), which is responsible for research administration as well as for implementation of policies for the enhancement of the University's research portfolio.

Due to the extensive support given to the academic staff for research, the University has produced important research outputs. For 2008-2009 alone, the research outputs included 2,546 journal publication, 2,440 conference papers, 587 scholarly books, monographs and chapters, 113 creative and literary works, consulting reports, and case studies, 49 patents, agreements, assignments, and companies, and 822 other research outputs (CUHK, 2010). It is known as the world leader in non-invasive prenatal testing theory and method, improvement of rice strains with biotechnology, development of the world's smallest Bluetooth communication module, a network coding theory that revolutionized data transmission and brought about a paradigm shift in network applications, the world's highest-resolution virtual human, using computer navigation for bone tumor surgery, and remote sensing science. Furthermore, its faculty roster includes academic honorees and awardees, such as Nobel Laureates, fellows, academicians, awardees, and winners.

Conclusion and Recommendations

This Hong Kong-based university has consistently emerged in the list of world-class universities. This is because it has established a very rich research culture. First, this University is very keen with its mission and vision –i.e., to be a first-class comprehensive research university locally, nationally and internationally. Its strategic goals are also made consistent with the mission-vision. It has in place a very conducive work environment and a well-established infrastructure to encourage and stimulate research activities among the faculty and students. It has set its research programs and policies that guide and put in the right directions the research activities of the University. It provides enormous research funding which they get from the government as well as from donations and endowments from private individuals and companies to finance its research activities, physical expansion and development, and facility and resources development and to give as research incentives and benefits to the faculty.

Now, what lessons can be learned from this University by others that also aspire to establish a research culture but do not get funding from their government? As Salmi (2009) has indicated, the role of the government and the resources that it provides to the university is one important key towards becoming a world-class university. The government funding is crucial to support research activities of a university as well as the establishment of research centers, laboratories, and other facilities.

However, Salmi(20029) also stressed the importance of the strategic dimensions carried out at the institutional level. The first and perhaps most important aspect is the quality of leadership and the strategic vision developed by the university. If the university aspires to be a world-class research university, then its strategic plans and programs and activities should be consistent with the core agenda of the university. The leadership team should be able to direct the university towards achieving this by establishing a very conducive environment and by proving the needed resources and infrastructure for the establishment of a rich research culture.

The path towards creating a rich research culture is long and arduous. According to Salazar-Clemena and Almonte-Acosta (2007), development of a research culture cannot take place overnight. It entails careful planning and constant process of development. Important components should be present to be able to enhance research productivity in the university. First, time to do research should be made available to

faculty. Lack of time to do research has always been the most-reported reason for the inability of the faculty to produce scholarly outputs. Faculty members have trifocal function - teaching research and community service, and teaching occupies most of their time of the faculty. The university should come up with a scheme, such that faculty will have time to do research. This could be done through de-loading in terms of the number of courses or units being taught, distribution of workload, and provisions for research assistants or junior researchers.

Second, a strong belief in research endeavor should be developed among the faculty. Because many faculty members are focused on teaching and consider themselves as teaching faculty, the university should come up with strategies to strengthen their belief of the importance of research in their teaching profession. Research has shown that strengthening the connection between research and teaching are advantageous to students, faculty and the institutions, and faculty members should be made aware of this. Prince, Felder, and Brent (2007) proposed some strategies to strengthen the nexus, and these include: (1) bringing research into the classroom; (2) involving students in research projects, and (3) broadening the model for academic scholarship.

Third, faculty involvement should be enhanced through mentoring and collaborative research. The university should come up with appropriate policies for research collaboration among faculty, between faculty and students, and between the university and external agencies and institutions. Next, positive group climate and working condition, decentralized research policy, and research infrastructure should permeate in the University. According to Salazar-Clemen and Almonte-Acosta, to create a positive climate, research must be presented as a requirement to the faculty in non-intimidating ways, expectations for research should be made clear to faculty aspirants, research should be broadly defined on the basis of the identified departmental research thrusts and priorities, and standards for research must be expressed explicitly.

Lastly, research funding as well as clear policies for research benefits and incentives should be available. This is because enhancing and supporting research productivity necessitates allotment of funds, specifically for funding research projects and supporting paper presentations in international conferences.