

# My recent visit of higher education institutions in the UK

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## Visit of Higher Education Institutions in the UK - Part 1 :

1. Taiwan-UK Research Collaboration Forum and Higher Education Funding in the UK
2. Imperial College London
3. King's College London
4. University College London (UCL)

Dear Colleagues and Friends:

Since the inception of Oxford University, United Kingdom has had more than eight hundred years of experiences in the development of higher education. Numerous historically famous scientists, writers and politicians have been educated by universities in the UK.

In 1991, I spent six months as a visiting scholar in the Cavendish Laboratories at University of Cambridge, which is jointly called "Oxbridge" with Oxford University, and exposed myself to world leading research environments. During those six months, I got the chance to work hand-in-hand with pioneering scientists from around the world and enjoyed inspiration from transformative and interruptive research undertaken in the university. Nineteen years later, I had the second chance for an extended visit of the higher education in the UK. On July 13-21, 2010, I joined a delegation from seven top universities in Taiwan led by President Lee of National Taiwan University and Director General Chang of International Affairs, National Science Council and spent ten days visiting Royal Society, Research Councils UK, Higher Education Funding Council for England, and seven top universities in the UK.

It was midst of July, the week of summer graduation for many universities in the UK. High level administrators in universities were busy with many graduation ceremonies they had to attend. We were fortunate to have the



Shown in the photo taken after the Taiwan-UK Forum are (from left to right) Dean of College of Electrical Engineering and Computer Science, Professor Tzeng, NCKU, President Steve Smith of UUK, and Dean of R&D Professor Chern, NTU.

assistance by staff of the National Science Council, Taiwan, Office of R&D, National Taiwan University, British Council Taipei, Taipei Representatives in London, and Universities UK to arrange for a formal visit of these institutions.

The main missions of the Taiwan delegation were (i) to understand the national level and university level higher education organizations, and their assessment strategies and funding structures, and (ii) to visit with enthusiastic, friendly and influential academic administrators and scholars in UK's top universities. Our goal is to effectively promote Taiwan-UK collaboration on all fronts, especially in high impact research.

By appointment of President Lai, I joined the delegation in representation of NCKU, visited these higher education institutions and met with nearly one hundred high level administrators, distinguished scholars as well as students from Taiwan who were studying in the UK.

UK is historically a highly internationalized country based on its global colonial history. In modern economy, it still plays a pivotal role in international financing and trading. Regarding the internationalization of academics, I was most impressed by a report I read when I visited Research Councils UK, which stated that more than half of publications in the UK were involved in foreign coauthors and those publications with foreign coauthors on average created 50% higher impact in terms of citations. This is further confirmed by very comfortable hospitality we experienced and the eagerness of our hosting delegations in pursuing collaboration with researchers in Taiwan.

Before we concluded the ten-day visit, a Taiwan-UK Forum was held in London. High level academic representatives from nearly twenty research intensive universities, besides those ten institutions we visited, attended the Forum. The Forum was jointly hosted by President of Universities UK, an alliance of 133 universities in the UK and President of National Taiwan University, the leader of the alliance of eleven top universities in Taiwan.

Participants of the Forum listened to keynote speeches about research programs and opportunities of collaboration in Taiwan and the UK. Each delegate from Taiwan also introduced the uniqueness and strengths of the university he/ she represented in Taiwan. A subsequent session of active discussion and exchange of experiences in international collaboration facilitated the brainstorming among Forum participants and Taiwan delegates in creative ideas of promoting collaboration.

During the ten-day intensive dialogues with our hosting delegations, participants of the Taiwan-UK Forum, and Taiwanese students who studied in the UK, a lot has been learned about academic research, education, and involvements of universities in society and economy in the UK. The degree awarding educational system in the UK is quite different from that in Taiwan. From what I learned from discussion with students from Taiwan who were currently studying in the UK, too much emphasis in grade points as the major means of assessing student performance hinders the imagination and creativity of students in Taiwan and their potential for transformative and interruptive research accomplishments.

The college education in the UK emphasizes mainly on specialties students choose. Usually, it takes only three years for a student to earn a Bachelor's degree. During this period of time, students take mainly courses relevant to their specialties. Master degrees and Ph.D. degrees usually take one year and three to three and half years to complete, respectively. Master degree is not required for a person to earn a Ph.D. degree. Students can study towards Ph.D. degrees directly after completing their Bachelor's degrees.

During the period of working on a Ph.D. degree, there is usually no credit hour requirement for course taking. Examinations are optional depending on individual Ph.D. programs and often decided by student advisors. In

disciplines related to science and engineering, usually, the Ph.D. education is divided into two stages i.e. MPhil and Ph.D. stages. The MPhil stage is similar to the Master Degree program and takes about one year and half to complete. During this first stage, students usually have to submit two or more reports and pass some oral examinations as required by each individual department. If a student passes this stage, he/she will become a formal Ph.D. student. If a student fails this stage, he/she might be offered a Master Degree or a certificate for equivalent courses.

UK's pre-college education is very diversified with an aim at holistic education. Report submission is more emphasized than written examinations. This allows the freedom for students to explore their real interest. Only those who wish to and need to receive higher education will compete to get admission to universities of their choices. The competition in entering top universities is very tough.

Students in the UK take 13 years of education before college compared to 12 years of education in Taiwan. In other words, the college freshman year in Taiwan is actually spent in the last year of pre-college "high school".

The pre-college education system in the UK gives college students with extensive cultivation in humanity before they enter universities. University education provides them with room for unlimited imagination and creativity, which often were inspired through interactions with people in different disciplines.

For a country with a population about 2.5 times that of Taiwan, there are less universities in the UK (about 130) than what we have in Taiwan (about 160). Only few universities in the UK are private. Almost all universities receive most of their resources (typically 60% or more) from the government funding agencies. A basic fund based on the number of enrolled students plus a highly competitive block fund based on nonlinear merit and subject based weighting factors for each researcher received from the government by each university. Highly competitive research grants for individual projects from within the UK and the European Union Framework Programs play an important role in the freedom of creative academic research.

For example, a researcher who is assessed to be "world leading" in research receives a weighting factor of "seven." A researcher who is assessed to have missed the basic national standards receives a weighting factor of "zero." Therefore, top ten percent of the universities receive the majority of the competitive block fund. Despite the fact that universities rely heavily on government funds, every university in the UK is autonomous financially and academically. UK is one example for scholars in Taiwan to learn when discussing about autonomous universities.

Global challenges, internationalization, interdisciplinary research, student employability, interactions with and technology transfer to industries are among emphases often stated in pride by universities we visited. Every university has its proud historical accomplishments and renowned figures as well as unique world leading on-going research projects.

In the following eight reports, I have tried to summarize information I collected, impression I received, as well as miscellaneous issues I observed during my visit. I also included contact information for people I met. They all are eager to pursue collaboration with outstanding researchers in Taiwan.

I hope that these reports can help team up people of common interest in Taiwan and in the UK to pursue collaborative research and education. If there is anything that I can help further in this regard, please feel free to let me know. You are very welcome to contact directly our hosting delegations in the UK as well as university representatives from all over the UK whom we met in the Taiwan-UK Forum.

Sincerely,

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