

## **Some Thoughts On Higher Education Across The Taiwan Straits**

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From March 15 – March 29, I piggybacked on the occasion where I was inaugurated as the Honorary Board of Trustees member of Nanjing University to visit both sides of the Straits of Taiwan. Perhaps it was purely serendipitous, in hindsight, that one of the highlights of this trip can be summarized into two entities: the city of Nanjing and three universities which all were spin-offs from the common origin of the National Central University, established in Nanjing in 1902!

There are at least three universities which spun-off from the original National Central University after 1949 when the Communist took reign in the Mainland. The original science and humanity components of the pre-1949 National Central University became the backbone of the now Nanjing University while the engineering component first became Nanjing Engineering College, and later on renamed as “Southeast University.” On the other side of the Taiwan Straits, the current National Central University was established in Chungli, Taiwan in 1962. All three universities are now comprehensive universities, spanning a wide range of colleges, from engineering to pure science to medicine.

### **Nanjing University (NJU):**

The primary reason for my Mainland –Taiwan trip was to attend the ceremony where I became the first foreign honorary member of the Board of Trustee of NJU.

While this is a great honor for me, I think it also is an honor for the University of Texas at Dallas (UTD) since NJU is undoubtedly one of the top research universities in China. In fact, in a lengthy article for the students of Taiwan with interest to pursue their higher education in the Mainland (apparently that is now more and more an option), the very popular Taiwan’s China-Kenner magazine (volume 106, April, 2003), which I purchased in the train station in the southern city of Tainan, Taiwan, it lists the basic science research programs of NJU as one of the best, if not the best, in China. This recognition is consistent with other evaluations of Chinese research universities, such as the annual ranking from netbig.com. Therefore, by linking UTD in this manner, and by extension the University of Texas system, to a top research university of China, I am sure it can only create win-win collaborative platforms for both universities. Indeed, the vision of NJU is clear: it wants to “break out from Asia” and becomes a globally-recognized first rate research university. From now on, as the new honorary Board of Trustee member of NJU, I will work as closely as possible with colleagues in NJU to turn this vision into reality in the foreseeable future.

The campus of NJU was formerly occupied by a university of Christian origin before 1949 called Jinling University (Jinling is the ancient name of Nanjing). The name Jinling has a special meaning to me since my late mother was a professor of music in the woman's counterpart of Jinling University called Jinling Woman's University some 55 years ago!

### **Southeast University (SEU):**

I had a brief visit to SEU during my short stay in Nanjing, which is almost across the street from NJU. From the small sample of research institutes I visited, mostly in microelectronics and wireless technologies, I detected that SEU appears to have considerable strengths in applied sciences. In fact, in one of the institutes, the director was very apologetic for not spending more time with me because the "top representatives" from Samsung Electronics of Korea and Phillips of the Netherlands, both are sponsors of the institute, were there to discuss the next collaborative phase.

The campus of SEU also is rich in history. For example, its main auditorium was the venue for the first Chinese "Congress" where Chiang Kai-Shek was elected as the president of the Republic of China in the early part of the 20<sup>th</sup> century. Also, as a deep admirer of Madame C S Wu, who was without question one of the greatest scientists of the 20<sup>th</sup> century (she provided the first experimental verification of the fact that there is a minute but profoundly important part of nature where mirror image is not valid), I was moved to see the magnificent memorial museum for her on SEU's campus. All through the '60's and '70's, and even into the early part of the '80's, Madame Wu was a household name in the global physics community. The fact that this museum is on campus at SEU also is a reflection of the intertwining relations between SEU and NJU. Madame Wu was a student in the physics department of the original National Central University in the '30's, whose campus is now the campus of SEU. Yet, the genesis of NJU's physics department is the department in which Madame Wu was a student. I find such an intertwined relation between these two outstanding universities most intriguing!

### **National Central University (NCU) and the "University System in Taiwan":**

On several occasions in the past twenty years, I visited NCU in Taiwan. NCU is in Chungli, which is an hour drive south of Taipei, and is in the heart of the manufacturing corridor (Chungli-Taoyuan) of Taiwan. However, with my good friend Professor Chuan Sheng Liu, a prominent physicist and former Vice President for Research of the University of Maryland assuming the Presidency of NCU, starting in early February of this year, and the fact that Professor Liu and I have on and off discussed about collaborative possibilities in the past several years, it appeared that the possibility of a significant partnership existed.

### **Projections of NCU, NJU, SEU, the University System of Taiwan (UST) and the University of Texas System (UTS).**

Two aspects about NCU are worth underscoring. First, according to President Liu, because NCU shares so much history with NJU and SEU, it is not a surprise that one of its stated goals is to collaborate with its two sister universities across the Taiwan Straits. In fact, according to President Liu, he has every intention of continuing this tradition. Once he learned about my intimate relationship with NJU, he welcomed my participation in exploring how the tri-university (NCU-NJU-SEU) collaboration could be deepened.

Second, a potentially important development for Taiwan is the establishment of the very first “University System of Taiwan” (UST). The aim of the “system” is by combining and synergizing the strengths of these four universities, it can propel the system’s elements to be world class. I first learned about UST from the Vice President of National Chiao Tung University in Hsinchu, Dr. Wen-Hsiang Tsai and later in more detail from President Liu. According to Dr. Tsai and Dr. Liu, there was a memorandum signed recently by the four presidents of the four universities. Three of the four: National Tsing Hua University (NTHU), National Chiao Tung University (NCTU) and National Central University are comprehensive universities and the fourth is the National Yang Ming University (NYMU), one of the best medical research universities of Taiwan.

Geographically, NTHU and NCTU are next to each other in Hsinchu (which is about two hours south of Taipei), and are next to the powerful quasi government industrial research center ITRI (Industrial Technology Research Institute). ITRI has 6000 researchers and a \$400 million (US) annual budget. Indeed, ability of ITRI on propelling Taiwan into a high-tech island cannot be underestimated. Also, Hsinchu has the first science park of Taiwan: the Hsinchu Science Park, where many of Taiwan’s semi-conductor industrial giants, such as TSMC (Taiwan Semiconductor Manufacturing Corporation) are located. There are now other science parks in Taiwan. On this trip, I also visited the one in the southern end of the island called the Tainan Science Park. In area, the one in the south is twice as large as the one in Hsinchu.

Although NTHU, NCTU and NCU are all comprehensive in nature, they do complement each other well with their respective traditional strengths. In addition, none of the three has a health science component. Thus, by bringing the medical university Yangming into the system, it will significantly enhance their collective research repertoire.

From my discussions with many people in Taiwan, the main features of UST in its fledgling stage have the following features:

1. The establishment of a Chancellor level position to oversee the operation of the system. I asked both Vice President Tsai and President Liu whether UST has a model in creating this, both mentioned that the systems of University of California and the University of Texas can serve their needs in this capacity. I also understand that within the next couple of months, UST will be formalizing such a Chancellor office, and therefore suggested to them that in my capacity as the Vice President of one of the components of the UT System, I am willing to assist them in contacting the UT Chancellor office.

2. The establishment of a matrix system of research centers. For example, it is anticipated that there will be a nanotechnology research center in Hsinchu, thus tapping into the strengths of ITRI and the Hsinchu Science Park. This center will draw strengths from all four campuses. I mentioned to the leaderships of NCTU and NCU that in Texas, we have SPRING (Strategic Partnership of Research In Nanotechnology), which involves the University of Texas at Austin, the University of Texas at Dallas, Rice University and the University of Texas at Arlington. SPRING has many of the stated goals of UST's center of nanotechnology. Therefore this could very well be one area where we can learn from each others. Another research center is about "brain research." Here again, because of the strong collaborative relationship between UTD and the University of Texas Southwestern Medical Center in this area, I think collaboration also is possible. At the minimum, it is worth exploring.
3. The establishment of a potentially profound joint "recruiting" program of students. Since this is not a goal of the University of Texas system (nor is it, I suspect, the goal of the University of California system), it may be worth our while to watch the degree of success of this program.

**Several things happen during this trip which shows the increasing interactions between both sides of the Straits.**

1. In my flight from Shanghai to Taipei, because the fact that politics prevented direct flights from the Mainland to and from Taiwan, I have to stop over in Hong Kong. Fortunately, this time around, I do not need to get off the plane. In the plane, I found myself surrounded by "Tai Shan" (Taiwan Businessmen), who all complained bitterly that such a stop over was a colossal waste of their time. Since time is money, many of them showed great unhappiness that how much money they were not making because they have to travel in this manner. This is by no means a small problem since according to some estimation, there are some 500,000 Taiwan businessmen living in Shanghai alone. In several districts in Shanghai, it is virtually Taiwan!
2. In the same article in the China-Kenner magazine (volume 106, April, 2003), it encouraged Taiwan students to consider the top ten universities in the Mainland. The top ten are (1) Peking University; (2) Qinghua University (the sister component of the National Tsing Hua University on this side of the Straits); (3) Nanjing University; (4) Fudan University; (5) Zhejiang University (in the beautiful city of Hangzhou); (6) Harbin Industrial University; (7) Shanghai Jiao Tong University (the sister component of the National Chiao Tung University and the one which just signed an MOU with UTD on the Four Corner collaboration); (8) Wuhan University; (9) Zhongshan University in Guangzhou (or Canton, for the old timers) and (10) Xieman University. I find the inclusion of the last one particularly intriguing. Opposite Xieman (for the old timers, it is called Amoy), a short swim away, is the island of Jinman (for the old timers, it is called Quemoy as in Quemoy-Matsu). Jinman is still controlled by the Republic of China

government. One of the reasons stated by the China-Kenner magazine why this university should be attractive to Taiwan's students (besides the fact that it is a good university) is because the distance between the campus of Xieman University and Jinman is so close that one can actually take advantage of the cell phone system of Jinman to call home in Taiwan!

I learned two things on this trip:

First: I noticed that in the past several years, there were many "mergers" of universities in the Mainland. The two most glaring mega-mergers are Jilin University (which merged the original Jilin University, which was a comprehensive arts and sciences university, with five other universities in the same city. It is so large now that the joke in the city of Changchun is that Changchun is in Jilin University and not the other way around!). I think the jury is still out as to the benefit of such mergers.

Second, the cliché "global village" is no longer a concept. It is real. Global village, and global economic competition are here to stay. Research universities are, or should be regional, national and international economic engines. They bear special responsibilities to further the "workability" of such a village.