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# **Huazhong University of Science and Technology – A Microcosm of New China’s Higher Education**

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The Huazhong University of Science and Technology (HUST) in Wuhan provides an interesting contrast to the University of Science and Technology of China (USTC), which has been profiled in Chapter 9. While the USTC resisted pressures for both merger and the rapid expansion of undergraduate enrollments, HUST embraced a complex merger and more than tripled its undergraduate enrollments, from 9,000 students in 1990 to 35,500 students in 2005. It also established two second-tier colleges, with enrollments close to 30,000 students by 2005.

HUST was established as a national polytechnical institution in the major industrial city of Wuhan under the Soviet influences of the early 1950s. Its initial curricular emphasis was on such applied fields as mechanical, electrical, power and auto engineering. The USTC was founded in 1958, and might be viewed as a reaction to the polytechnical model in its commitment to integrating basic and applied sciences. Both have had high profile roles since the reforms of 1978, yet the different paths chosen by their leaders illustrate the degree of autonomy they enjoy.

This chapter begins with a brief historical overview, which provides a background for understanding HUST’s experience in the move to mass higher education. This is followed by an empirical account of major changes in student numbers, finance and curriculum between 1990 and 2005, then a discussion of major decisions around merger, expansion and campus space from the perspective of contemporary university leaders. Next views from faculty and students are presented and the chapter concludes with reflections on the core values and cultural characteristics of an institution seen by many as a “microcosm” (縮影) of new China’s higher education.

## History and Context

### *Wuhan and the Central South Region*

After the 1949 Revolution, Wuhan became a major centre for the development of higher education, as the leading city of the Central South region, which stretched from Henan province, directly south of Beijing, down to Guangdong province in the South. One of six major geographical regions, the Central South lines up beside the East China region, which reaches from Shandong on the Coast north of Shanghai, down to Fujian, opposite Taiwan. While the Southwest, Northwest, North China and Northeast regions seem to make geographical sense, one cannot help wondering whether the Central South and East China were defined in this way so as to ensure control over the dynamic southern provinces of Guangdong and Fujian.<sup>1</sup>

As a major industrial city in the middle reaches of the Yangtze River, Wuhan was designated the leader of the Central South region, and a large number of national level universities were located there, including Wuhan University, a national key comprehensive institution, Huazhong Normal University, and the Huazhong Institute of Technology, later retitled the Huazhong University of Science and Technology. HUST was established in 1953, in a reorganization that brought together Engineering Departments from Wuhan University, Hunan University, the Huanan Institute of Technology in Guangzhou, Guangxi University and Nanchang University in Jiangxi. In addition to these three major national institutions under the Ministry of Education, there were many specialized institutions under such national ministries as Metallurgy, Construction, Finance and Health. As a major industrial city with a large steel and auto industry, Wuhan was to educate specialists both for the Central South region and for the nation, while the provinces of Henan, Hunan, Guangdong and Guangxi were dominated by local institutions serving provincial needs.<sup>2</sup>

When HUST was established as a major national polytechnical institution, it was expected to have a parallel role in the Central South to that of Harbin Institute of Technology in the Northeast, Zhejiang University in East China, Jiaotong University in Shanghai and later the North-

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<sup>1</sup> See the discussion of this issue in Chapter 5 on Xiamen University, p.161.

<sup>2</sup> Ruth Hayhoe, *China's Universities 1895-1995: A Century of Cultural Conflict* (Hong Kong: Comparative Education Research Centre, The University of Hong Kong 1999), pp.149-195.

west, and Chongqing University in the Southwest. Each region was to have at least one major polytechnical university, as well as a comprehensive and a normal university. In spite of all the changes over the half century since the reorganization under Soviet influence, it is interesting to see that HUST leaders still see these institutions as major reference points in their development.

If HUST found itself with all the right geographical and logistic conditions to become a leading technological university in the 1950s, this might never have happened without the leadership of one man, whose spirit continues to inspire its leaders, faculty and students nowadays. That is Professor Zhu Jiushi (朱九思), the vice-chair of HUST's organizing committee in 1953, and subsequently Vice Party Secretary, Vice President, Party Secretary and finally President from 1979 to 1984. The vision Zhu developed for HUST during the dark days of the Cultural Revolution, led to it becoming a nation-wide model in the 1980s. Zhu himself also emerged as an influential higher education thinker on the national scene.

#### *A New Vision for HUST after the Cultural Revolution*

In the Great Leap Forward of 1958, when the Chinese Academy of Sciences established the UTSC, with a focus on integrating basic and applied sciences, HUST also established programs in basic mathematics, physics and chemistry for the first time.<sup>3</sup> Unfortunately these were cut back in the retrenchment of the early sixties, and the outbreak of the Cultural Revolution in 1966 left the campus nearly empty, as no new students were recruited and faculty were required to move to the countryside. Zhu was among the first to move back to the campus in 1970, and he found it was being used by local farmers to grow vegetables. In the year before faculty members returned and the first cohort of revolutionary students was recruited, he had time to reflect on the idea of the university. The vision he developed was implemented gradually, as the country recovered from the ravages of the Cultural Revolution.<sup>4</sup>

It arose initially from reflections on his memories of Zhu Kezheng,

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<sup>3</sup> Yao Qihe (ed.) *Huazhong ligong daxue de sishinian* [The forty years of the Central China University of Science and Technology] (Wuhan: Huazhong ligong daxue chubanshe, 1993), p.68.

<sup>4</sup> Ruth Hayhoe, *Portraits of Influential Chinese Educators* (Hong Kong: Comparative Education Research Centre, The University of Hong Kong, and Springer, 2006), pp.132-133.

President of Zhejiang University during the 1930s, when he had worked there, as well as his earlier experience of an excellent academic secondary school in Yangzhou. There were several core features to the vision: an emphasis on human talent and the need to attract excellent scholars; an understanding of the vital necessity for research to be integrated with and indeed to lead teaching, a feature absent from the Soviet model; and an awareness that scientific knowledge knows no borders and thus a free flow of knowledge from international sources is essential.

On the basis of this vision, Zhu recruited 600 talented new faculty members, from among scholars of top universities who had been banished to the countryside. He took every opportunity to seek new sources of research funding, long before the establishment of the National Natural Sciences Foundation (in 1985) or the 863 High Technology Fund (in 1986), through linkages with the ministries of Mechanical Industry and Electronics Industry and the establishment of new programs in areas related to laser technology and electronics. He set up a program to ensure that all faculty could raise their standards of English and gain access to international scientific research information. Finally, he determined that it was not enough for HUST to be a university of science and technology, it must move towards a more comprehensive curriculum and include selected areas of the humanities and social sciences. Excellent scholars were thus recruited in philosophy, Chinese, the history of science, journalism and higher education and small programs set up in each of these areas, as well as opportunities for students in basic and applied sciences to have some exposure to the humanities and social sciences.<sup>5</sup>

When the first national science and education conferences were held after Deng Xiaoping came to power in 1978, Zhu contributed a paper on the importance of having scientific research in the forefront of teaching and learning, and in the reform document of 1985, Chinese universities were declared to be centres of research as well as teaching for the first time since 1949.<sup>6</sup> Although Zhu retired from the Presidency of HUST in 1984, he has continued to be an active scholar and commentator on higher education issues up to the present, working in HUST's influential Higher Education Research Centre and nurturing a generation of

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<sup>5</sup> *Ibid.* pp.133-138.

<sup>6</sup> See Ruth Hayhoe, *China's Universities 1895-1995: A Century of Cultural Conflict*, p.122.

doctoral students in higher education.<sup>7</sup>

The subsequent presidents of HUST have all been HUST graduates except Huang Shuhuai, president from 1984-1993 and a graduate of Harbin Institute of Technology and Tsinghua University. He was succeeded by Yang Shuzi, HUST's first Academician, and a specialist in Information Technology and Manufacturing, 1993-1997, then Zhou Ji, a Computer Science and Manufacturing specialist,<sup>8</sup> 1997-2001, then Fan Mingwu, an expert in Cyclotron and Magnet theory, 2001-2005 and finally Li Peigen, the current president and an expert in Information Technology and Manufacturing.<sup>9</sup> Probably the president whose leadership has had the greatest impact in terms of the massive expansion of enrollments was Zhou Ji, who left HUST to become Mayor of Wuhan in 2001, and was subsequently appointed Vice Minister of Education in 2002 and Minister of Education in 2003.

As for the decision to enter into a major merger, this was made in 1998. The story of how it came about illustrates the continuing influence of long-retired president Zhu Jiusi. After the launch of the 98/5 project at the 100<sup>th</sup> anniversary of Peking University's founding, seven other top institutions were invited to join Beida and Tsinghua in this elite group: Fudan, Nanjing University, Shanghai Jiaotong, Xi'an Jiaotong, Harbin Institute of Technology, Zhejiang University and the USTC. It was widely thought that few other institutions would be allowed in, and a merger between HUST and Wuhan University was suggested as a way in which Wuhan might be able to get the tenth place.<sup>10</sup>

Although Zhu Jiusi had been a student at Wuhan University in the

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<sup>7</sup> Zhu Jiusi, *Jingzheng yu Zhuanrang* [Struggle and Transformation] (Wuhan: Huazhong Ligong Daxue Chubanshe, 2001). This volume contains many of the essays Zhu wrote on different facets of higher education, that had a national influence.

<sup>8</sup> Zhou Ji has a first degree from Tsinghua, a Masters from HUST and a PhD from SUNY Buffalo.

<sup>9</sup> Li has a first degree from Donghua University, a Masters degree from HUST and a PhD from University of Wisconsin Madison.

<sup>10</sup> Ruth Hayhoe and Julia Pan, "China's Universities on the Global Stage – Views from University Leaders," in *International Higher Education*, No.39, Spring, 2005, pp.20-21, and Ruth Hayhoe and Qiang Zha, "China's polytechnic transformation," in *International Higher Education*, Vol.60, No.2, Summer 2010, pp.11-13. It is interesting to note that six of the original nine top institutions included in this project are technological universities, reflecting the continuing influence of the Soviet patterns of the 1950s.

1930s, his career had been dedicated to creating an institution that distinguished itself by very different standards of excellence than those of Wuhan University. He also had strong views about the lack of unity and cohesion among the leadership at Wuhan University. He thus took the initiative to write to Chen Zhili, then Minister of Education, and express strong objections to the merger idea. He also got in touch with a famous academician at the Tongji Medical University in Wuhan, Professor Qiu Fazuo, who was opposed to his institution being merged with Wuhan University. Chen Zhili came to Wuhan and views on merger possibilities were heard from all sides. In the end, a different set of mergers took place, than the one originally envisaged.<sup>11</sup> HUST entered into a merger agreement with the prestigious Tongji Medical University, as well as the Wuhan Urban Construction Institute, originally under the national Ministry of Construction.<sup>12</sup> Wuhan University, for its part, embraced a local medical university and two specialized universities that had been under national ministries.<sup>13</sup> Both universities were ultimately able to join the 98/5 Project.

While Zhu Jiusi had considerable influence in shaping this merger decision more than a decade after his retirement, he was not able to constrain the university's decision to embrace a massive program of expansion, which brought an overall growth in enrollments from around 10,000 in 1990 to over 60,000 by 2005. A combination of financial incentives for growth, an unusually large main campus and continuing close relations with a president who became minister of education over the years when national policy promoted rapid expansion, all played a role. Undaunted by this situation, Zhu has remained vocal in expressing his principled opposition to top-down pressures for merger and "uncontrolled" enrollment expansion. Given the opportunity to attend a meeting called by Premier Wen Jiabao early in 2008, he wrote a paper expressing the reasons for his opposition, and elaborating his own

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<sup>11</sup> Interview with Zhu Jiusi, 25 May 2008.

<sup>12</sup> The main HUST merger took place on 26 May 2000, but the Wuhan Science & Technology Vocational College, a training college for administrators under the national Ministry of Science and Technology, had been merged in earlier, on 28 February 2000.

<sup>13</sup> These were the Hubei Medical University, the Wuhan University of Hydraulic and Electrical Engineering, and the Wuhan University of Surveying and Mapping.

philosophy for higher education leadership and development.<sup>14</sup>

*Critical perspectives of a former president*

The paper begins by critiquing top-down pressures for merger and questioning to what extent mergers can enhance university quality and how well the multi-campus institutions that result can be managed. It goes on to express strong criticism of the national policy decision for rapid expansion, pointing out problems of teaching quality and student neglect that have resulted, also issues of high unemployment rates for university graduates and the neglect of the mid-level technical education needed for the job market.

Part two of the paper questions the quality of university leadership and makes a plea for university presidents with genuine scholarly qualifications as well as leadership ability and higher education vision. One of the most important responsibilities of a university president is to protect academic freedom, Zhu asserts, giving examples from his own experience and that of Zhang Kaiyuan, a renowned historian and former president of nearby Huazhong Normal University. University presidents should be seen as scholarly leaders rather than administrative appointees, and their terms should not be limited to four or five years; rather they should stay in office as long as they are effective. A list of well-known presidents of famous Western and Japanese universities who served between 15 and 49 years is provided to support this point.

The final section of the paper focuses on faculty and the importance of nurturing strong scholars and researchers as the most essential factor for university excellence. Here a strong case is made for maximum autonomy for scholarship, with Cai Yuanpei's famous phrase "professors rule the school" (教授治校), being highlighted. Professor Zhu was clearly using this paper to call attention to core values of the university which he fears may have been neglected in the scramble for expansion and the flurry to rebuild the campus and integrate the departments and programs of the recently merged institutions.

Against the background of these critical comments from an influential former president, we now turn to a presentation of the data we have

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<sup>14</sup> This unpublished paper is entitled "Zemoyang ban daxue" [How to run universities] and dated November 2007. He gave a copy of this paper to both authors of the chapter at the beginning of their week of interviews with university leaders, faculty and students, on 25 May 2008.

collected on HUST's enrollment growth, financial profile and curricular development from 1990 to 2005. This historical overview has shown that these decisions were not without contestation or vigorous debate!

## **HUST Moves to Mass Higher Education: An Empirical Overview**

### *Growth in Student Enrollments, 1990-2005*

Growth in student enrollments has been dramatic since the national policy decision of 1999. Figures provided by the university for the years 1990, 1995, 2000 and 2005 give clear picture of this. While total undergraduate enrollments in 1990 were 8,895, rising only to 9,407 in 1995, by 2000 they had jumped to 21,195, and by 2005, to 35,586. Graduate enrollments saw even more striking growth, from 1448 in 1990 and 2434 in 1995, to 6558 in 2000 and 25,484 in 2005. Clearly the huge undergraduate increase between 1995 and 2000 reflected the merger situation, with the addition of students from the medical and construction institutions, while the dramatic increases in both undergraduate and graduate students between 2000 and 2005 were a matter of institutional policy. Further statistics provided by the university show that the percentage of students in social science and humanities areas in undergraduate programs remained nearly constant over this period, with 13% in 1990, 15% in 1995, 15% in 2000 and 14% in 2005. Given that all the students integrated into the merged university from the medical and construction institutions were in basic or applied sciences, this indicates a relative strengthening of humanities and social science areas within the merged institution.

The percentage of female students at the undergraduate level has shown a significant increase over the period, with 20% in 1990, 19% in 1995, then 28% in 2000 and 27% in 2005. At the graduate level, female percentages have increased from 16% in 1990, to 20% in 1995, 25% in 2000 and 26% in 2005. These figures do not reflect a greater enrollment of female students in engineering fields, as much as the tendency for there to be high female enrollments in medicine, and also in social science and humanities programs. Breakdowns on enrollments in social sciences and humanities showed 48% of students in the social sciences were female in 2005, and 71% of students in humanities.

We were only given a very general breakdown of students by family background, with the head of student affairs informing us that about 50% of students came from rural families and that this percentage had re-



mained constant. Minority students constituted a very small percentage of the total in 1995, 447 out of 9,407 (4.7%), dropping to 408 in 2000 (1.9%) but this number rose to 2,337 in 2005 (7%). This reflects deliberate support policies for minority students, including two special classes for Tibetan and Uighur students, as well as those minority students who come in through regular channels but are given some priority in admissions.

About 38% of HUST students come from the province of Hubei, with the remainder being recruited nation-wide. National policy calls for no more than 30% of students being recruited locally, in order to ensure fair opportunity for students nationwide to gain access to popular national institutions. Hubei students generally are of high quality and HUST is very popular with top students locally. Thus this situation is justified in light of modest financial support from Hubei province.

In addition to the 61,070 students enrolled in regular programs in 2005, there were another 29,606 enrolled in Wuchang and Wenhua Colleges, the two second-tier colleges established by HUST between 1999 and 2003.<sup>15</sup> These students receive graduation certificates from the colleges, which are independent legal persons, yet their degrees have been from HUST up till most recently.<sup>16</sup>

Numbers of international students at HUST have been very limited, with only 66 in 1995, 330 in 2000 (57% in degree programs), and 234 in 2005 (74% in degree programs). By 2008, there were reported to be 1,022, with 80% in degree programs and students mainly coming from Korea, India and various countries in Africa.<sup>17</sup> Two programs were being offered in English to international students, one in electronics and information engineering and the other in clinical medicine. Historically HUST had not been well equipped to provide programs in Chinese language and culture that used to attract the majority of international students, but this situation is clearly changing, as more and more international students come for degrees.

This statistical overview of changes in student numbers shows an institution that has undergone dramatic expansion in the period between 1995 and 2005. Both national policy and financial incentives have played

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<sup>15</sup> In terms of management and finance these colleges are independent of HUST, though a percentage of their teaching staff are retired or part-time HUST professors.

<sup>16</sup> They will soon be conferring their own degrees, under new national policies for second-tier colleges.

<sup>17</sup> Interview with Yu Hailin, Dean of the College of International Education, 25 May 2008.

into this, and we thus turn next to HUST's changing financial profile.

### *The Changing Financial Profile of HUST*

The overview of the university's financial situation from 1990 to 2005 shows certain significant trends of change. Most striking in terms of annual income is the rising importance of student fees as base income, with a growth from 6.8 million in 1990, to 23.3 million in 1995, 243 million in 2000 and 603.7 million in 2005. From a mere 7% of income in 1990, student fees have now come to constitute 34% of the university's overall income. Over the same period, direct government grants have grown from 46 million or 48% of income in 1990 to 437.5 million or 25% of income in 2005. Special government grants associated with the national Projects 21/1 and 98/5 constituted about 5% of income in 2000 and 2005. The other major source of income has remained a relatively stable percentage, that of research grants from governmental and non-governmental sources. Over all research funding grew from 26.4 million in 1990 to 479.7 million in 2005, but remained at close to 27% of total income.

Other sources of funding in 2005 included 159 million from various types of income generating projects. One of the most important of these in recent years, we learned, was the running of the two second-tier colleges. HUST claims 20% of all student fees, in return for their advisory and quality assurance services. With nearly 30,000 students paying 10,000 per year in 2005, this adds up to an annual input of 60 million for HUST. By contrast, donations and gifts have remained very modest, 8.9 million in 2000, 7.2 million in 2005, well under one percent of the total income of 1.77 billion in 2005.

With student fees now constituting the largest proportion of the university's income, and each regular undergraduate student attracting 6,600 per year in government grants on top of direct fees of 4,000, one can see what a strong incentive there has been for expansion of student numbers. The reality of a large and commodious campus which has accommodated a major building program in terms of new classrooms, libraries and laboratories, and the addition of the adjacent campus of the Urban Construction Institute, has meant there has been no need to develop a suburban campus.

On the university budget side, information was provided on four main categories: faculty and staff salaries, teaching expenditures, student assistance and basic construction. In these figures, we could see a gradual increase in the percentage of the budget going to salaries, from 26.9

million (31%) in 1990 to 667.2 million (41%) in 2005. The other major item, teaching and research support rose from 43.2 million (50%) in 1990 to 877.4 (53%) in 2005. Student aid increased from 2 million (2%) in 1990 to 65.4 million (4%) in 2005, and constituted a little over 10% of student fee income of 607.2 million. Basic construction fees remained relatively low, 6% of budget in 2000 and 2% in 2005. We understand that some major construction projects are budgeted separately, also that the finances of the two teaching hospitals associated with the former Tongji Medical University have not been included in these figures. They provide only basic insights into the significant changes that have come with the move to mass higher education.

#### *Curricular Change from 1990 to 2005*

The third area of change that needs to be profiled here is that of the curriculum. In the early years after the end of the Cultural Revolution, Zhu Jiushi had set HUST on a unique course, that distinguished it from most other technological universities. His intention had been to strengthen the basic sciences, to link science and technology research to international currents in the field, and to build a small but excellent set of social science and humanities programs that would complement the strong focus on engineering. Thus in 1990, HUST had 19 departments in three major areas. Basic Science Departments included mathematics, physics, chemistry and mechanics. Engineering Departments included optical engineering, bio-engineering, mechanical engineering, power engineering, electrical engineering, shipbuilding, electrical and information engineering, solid state electronics, automatic control engineering, computer science, construction and civil engineering. In addition were Departments of Humanities, with programs in Chinese linguistics, journalism, English, Chinese society, higher education administration, and management, with programs in economics, international trade, economic statistics, sociology, patents, engineering management, material management and management information.

Over the 1990s, the curricular profile changed, both in terms of content and organization. As elsewhere in China, departments were grouped into colleges or schools. At first it was proposed that only those departments with doctoral programs could be upgraded into a college, but later it was decided that colleges could be created on the basis of

major disciplines or programs.<sup>18</sup>

By 1998, the curriculum had a whole new face – with a College of Economics, having Departments of International Trade, Economics and Finance, a College of Management, having Departments of Finance, Information Management and Information Systems, Business Management, Accounting, Financial Management, a College of Humanities, with Departments of Law and Chinese, a College of Education and a College of Journalism and Media Studies, as well as independent Departments of Foreign Languages, Sociology, Mathematics, Physics, Chemistry and Optical Engineering. In the sciences and engineering were Colleges of Life Sciences and Engineering, Materials Science and Engineering, Mechanical Science and Engineering, Computer Science and Technology, Construction and Communications, as well as independent Departments in Instrumentation Science and Engineering, Power Engineering, Electric Power Engineering, Electronic and Information Engineering, Automatic Control Engineering, Electron Science and Engineering, and Civil Engineering. This was pre-merger, and all the new developments were evolving from the rich curricular base already in place.

**Comment [Emily1]:** They are in upper cases because they are names of dept/school/college

By 2000 the curricular profile had been further transformed, with almost all departments now within colleges, and evidence of the new areas in construction, environmental science, medicine, public health, and pharmacy being integrated into the picture. There were now new colleges of law and public administration, in addition to economics, management, humanities and education. The Departments of Mathematics, Physics and Chemistry were grouped within a College of Science and there was a new College of Informatics which grouped together Optics, Electronics and Systems Engineering. There were also new Colleges in Hydroelectric Power and Digitization, Energy and Power Engineering, Electronics and Electrical Engineering, Construction and Urban Planning, Environmental Science and Engineering, Civil Engineering, Transportation Science and Engineering, Public Health, Clinical Medicine, Pharmacy and Health Management. In 2003 a College of Software Engineering was added, and by 2005 the College of Education had developed new Departments in Educational Philosophy, Applied Psychology, Developmental Psychology and Physical Education, all added to the early focus on Higher Education Administration. The only Departments that remained free standing were Sociology, Foreign

**Comment [Emily2]:** Upper or lower cases?

<sup>18</sup> Interview with Xu Xiaodong, Provost, 25 May 2008.

Languages, Medical Law and Nursing.

This information on curricular change has been gleaned from internal university documentation, which was provided to us. In the next section, we will try to get an inside view of some of the key decisions that lay behind these developments.

## Vision and Strategic Direction

We were fortunate to be able to interview two vice presidents as well as leaders responsible for teaching affairs, research, student affairs, finance and the dean of the newly established college of international education. Among them were two individuals who had come from the former Tongji Medical University and the Wuhan Urban Construction Institute. We were thus able to get a multi-dimensional view of core issues such as the university's vision and mission, the merger experience, the spatial reconfiguration of the campus, the decision on second-tier colleges and basic teaching and research concerns.

### *Vision and Mission*

Comments on the university's vision and mission arose in many of our interviews, giving a sense that there was an intense awareness of the important role played by core values in the university's development. The head of student affairs put it this way:

The reason HUST has developed so well is because it has been rich in ideas, the ideas of a series of leaders who have left their mark. Zhu Jiushi gave us the phrases 'daring to compete' and 'excellent in transformative capacity;' Yang Shuzi caused us to focus on the 'cultural and humanistic quality of students' and started a national movement of cultural rejuvenation on Chinese campuses; Zhou Ji emphasized the importance of integrating production, learning and research, enabling us to link our work closely with the changing demands of industry, and Li Peigen has given us the concepts of 'cultivating students as the fundamental focus,' 'creativity as the basic spirit' and 'bearing responsibility for action.'<sup>19</sup>

The Provost talked about the process of establishing a mission statement, and described how the mission and vision put forward under current president Li Peigen had been arrived at. First the main outline was discussed by the university's Party Committee, and then delegated

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<sup>19</sup> Interview with Zhu Xin, Head of the Student Affairs Department, 30 May 2008.

to a policy committee to refine the language and concepts and get broad feedback from different sectors of the university committee. After lengthy deliberation of this kind, a revised document was presented to the annual congress of faculty and staff for a formal vote. The Provost particularly wanted to make the point that no one leader could control this process in spite of a Chinese context where revered scholars and authority figures tend to have a powerful voice in decision-making. He illustrated this by noting that an earlier president had tried to narrow down HUST's curricular focus to emphasize a few specific areas in the natural sciences, engineering and medicine but had failed to gain faculty support for this.<sup>20</sup>

The contemporary mission is succinctly expressed in the following way: "a research-based university with an open-minded spirit and an internationally recognized reputation." The three core phrases constituting the vision are as follows: "cultivating students as the fundamental focus," "creativity as the basic spirit", and "bearing responsibility for action." A new motto has also been recently adopted: upholding morality (明德), advocating learning (厚學), seeking truth (求是), and innovating (創新).

The motto developed under the leadership of Zhu Jiusi in the late 1970s had featured a somewhat different set of values: Unity (團結), Truth (求是), Rigor (嚴謹) and Progress (進取). One leader commented that these concepts, and most particularly unity and rigor, have continued to inspire and guide HUST, whereas the new motto could easily constitute a vision for Chinese civilization more generally.<sup>21</sup> In a certain sense, the two mottos are visually related to two significant buildings on campus, one old and one very new. The South First Building (南一樓) was identified by at least five of those participating in our interviews or focus group meetings, as the building most expressive of the HUST spirit. Built in the 1950s, it typifies the Soviet influences of the time, a rectangular building with vertical and horizontal lines that give one a sense of the linear precision of the engineering profession. It was originally established as the university's main laboratory building. Then in the 1970s it was linked up to two large teaching wings in the shape of rectangular horseshoes to the East and West, making this complex the largest building on the campus. In front, facing the main entry gate to the

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<sup>20</sup> Interview with Xu Xiaodong, Provost, 25 May 2008.

<sup>21</sup> Interview with Feng Xiangdong, Vice President, 29 May 2008.

campus, is a statue of Chairman Mao which is still standing to this day.

**Photo 10.1: The South First Building (南一樓) at the Core of the HUST Campus**



In addition to mentioning the Nanyi Building, the most common comment of students, faculty and leaders on spatial features that reflect the campus ethos was related to the grid-like character of the campus. All roads are straight and those on the north-south axis are paved with green bricks while those on the east-west axis are paved with red bricks. This means that it is impossible to lose one's way. Unlike the campus of Wuhan University, where there are many winding paths and unexpected turns, the HUST campus expresses the engineering spirit, where everything is clearly laid out and there are no anomalies or puzzles.

By contrast, a huge new teaching building has recently been erected on the East side of the campus, with four rectangular end buildings connected by an elongated main building that curves around the edge of a lake. In front of this building is a newly unveiled bronze statue of Confucius, given to the university by a Hong Kong donor.<sup>22</sup> This building is the pride and joy of the President's assistant, who is responsible for campus spatial development and who noted that it was designed by an architect from the South China University of Technology.<sup>23</sup> However, neither students nor faculty mentioned this building, when asked what architectural features of the campus reflected the HUST ethos. We

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<sup>22</sup> HUST website, accessed July 19, 2008, <http://www.hust.edu.cn/english/hustnews/news109.htm>, for photos of the unveiling in the presence of HK donor, Dr. Tong Yun Kai.

<sup>23</sup> Interview with Du Zhongxian, Assistant to the President, 26 May 2008.

assume it is still too new to have found roots in their minds and hearts. The overall shape and layout of the campus, however, may express some kind of integration of the revolutionary and engineering spirit that characterized the university's founding and the more explicitly cultural and holistic spirit expressed in curricular developments since the 1980s.

A graduate of the 1980s, who later wrote his doctoral thesis on HUST, noted parallels between the campus layout and the Beijing Imperial Palace, as both face south, with a hill behind them to the north. There is a kind of axial symmetry in the location of the Nanyi building at the centre front of the campus, dividing it into east and west sections, while a central commercial street divides the front of the campus, where teaching and research occur, from the back, where there are residential and recreational facilities. In his view, "the architects of the HUST campus ... consciously or unconsciously practiced the principles that were used in the palace because these principles represent China's traditional philosophy and aesthetics in architecture. They are the cultural umbilical cord between this new university and traditional China."<sup>24</sup>

**Photo 10.2: The map of the main campus shows the location and size of the iconic Nanyi Building, facing the main gate, and the grid-like pattern of the overall campus layout.**



<sup>24</sup> Zhao Juming, "The Making of a Chinese University: An Insider's View of an Educational Danwei" (Unpublished book manuscript, 1999, drawn from a PhD thesis, McGill University, 1998), p.44.



*Strategic Directions*

Our interview with HUST's Executive Vice-President, Ding Hanchu, opened up insights into the university's broad strategic directions and how they had been developed. He explained that HUST leaders were reflecting on the experience of several local peer universities, including Shanghai Jiaotong University and Zhejiang University, also that they had chosen to learn from several American models. Ever since the late 1970s, former President Zhu Jiusi had upheld models such as MIT and Berkeley, noting that when he visited North America in 1979, he did not find a single university of high reputation which was not comprehensive in curricular offerings. Ding explained that President Zhou Ji had led the way in a careful historical study of MIT's development, and concluded that its most important period of flourishing had been between the first and second world wars, when it raised the status of technological research to a leading area of scholarship and spawned many high tech companies on the famous Route 128 around Boston. Stanford's experience with the development of Silicon Valley was also an inspiration to HUST, and more recently the Yale medical school experience.<sup>25</sup>

Ding went on to say that HUST had to take a very different development strategy from that of Peking University, with its focus on basic fields of knowledge. The starting point for HUST is the integration of liberal arts and engineering and its responsibility is to be an industry leader. Ding was proud of the fact that HUST graduates have been involved in a large number of start-up companies, many of them in Shenzhen, the dynamic city that has sprung up next to Hong Kong, including famous brand names such as Huawei (華為), which is now a major Chinese multinational. HUST itself does not yet benefit greatly in financial terms from Huazhong Keji, the company it started in the mid-1990s, which now carries forward its innovative legacy.<sup>26</sup> Nevertheless, HUST members are proud of the huge number of new jobs that have been created and the tax base enjoyed by government, as a result of their capacity to innovate and start up new areas of industry. Outsiders find the spirit of HUST somewhat of a puzzle, commented Ding, and his best way of explaining this is by contrasting it with the more conservative

**Comment [Emily3]:** Have changed to upper case because other chapters used upper case!

<sup>25</sup> Interview with Ding Hanchu, Executive Vice-President, 28 May 2008.

<sup>26</sup> In an interview with Nie Ming, Vice-Director of the Finance Department, we learned that HUST shares in Huazhong Keji are worth more than 1 billion Yuan, but the company does not pay high dividends, since it is investing in its own future.

scholarly ethos of Wuhan University: "Wuda is like England, with a long history, a deep culture and considerable resistance to change ... by contrast HUST is like the USA, open to change, experimental and never held back by history."<sup>27</sup>

HUST has gone through three important phases of change, in Ding's view. The first took place in the 1980s, when its renewed strength in physics and its application to production led to a strong focus on optics. The second took place in the 1990s, as optics was integrated with electronics and information technologies, opening up new areas of high tech industry. The third was linked to the merger with Tongji Medical University and the integration of optical electronics with biology and medicine, leading to many new medical applications of technology.

HUST's proudest achievement has been its success in persuading the national government to establish the "Optics Valley (光穀)," a state laboratory in opto-electronics, close to the HUST campus in Wuhan. This is one of only five such laboratories, the other four being affiliated with the Chinese Academy of Sciences, Tsinghua University, Peking University and the University of Science and Technology of China. The fact that President Li Peigen chairs its Board of Directors makes possible many synergies in research and teaching between the university and this state lab. Ding believes that biotechnology will be the leading area of this century, as the very mysteries of life itself open up some of their secrets in response to the new technologies. This national laboratory is thus a crowning achievement of HUST's development strategy. Ding credits it to the determination of President Zhou Ji, now China's minister of education, to ensure that the university leads industry by integrating production, learning and research.

#### *The merger issue*

From the main leaders of HUST, we got a sense that the merger with the medical university was a welcome move, one which opened up a whole new set of possibilities in high technology with medical applications, and was a particular stimulus in research. HUST already had a large and commodious campus of 4,000 mu in Hankou, while absorbing the Wuhan Urban Construction Institute next door had extended its size by another 3,000 mu. So far, Tongji Medical University has remained on its original campus in Wuchang.

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<sup>27</sup> Interview with Ding Hanchu, Executive Vice-President, 28 May 2008.

The fact that former President Zhu Jiusi had guided HUST towards becoming more and more comprehensive from the late 1970s was also a positive factor in facilitating the merger.<sup>28</sup> There were some among the students and faculty who would have welcomed a merger with Wuhan University, due to its longstanding academic reputation,<sup>29</sup> but the leaders and most faculty agreed with the initiative of Zhu and Qiu Fazu at the Tongji Medical to embrace a merger which allowed HUST to maintain and broaden its own unique ethos.

Once the merger decision had been made, the question of how integration among the three institutions would take place became an important one. Would the medical school remain practically independent, running its programs as usual under a new name, or would it truly integrate? The same question faced the Urban Construction Institute. As it turned out, full integration was to come about under the presidency of Li Peigen, for reasons relating both to his vision for the university and his personal network. Before relating that story, we need first to hear the views on merger from the perspective of Tongji Medical University and the Wuhan Urban Construction Institute.

Dr. Ma Jianhui, formerly a professor of Tongji Medical University and now Vice Provost of HUST, gave his view of the merger from the Tongji perspective. He noted that Tongji Medical University had a long history. Originally founded by German doctors in Shanghai in 1907, it had been a leading faculty of national Tongji University in Shanghai in the Nationalist period. With the reorganization of 1952 under Soviet influence, Tongji's medical faculty was moved to Wuhan, where it was combined with the medical faculty of Wuhan University (founded in 1916) and given a new campus in Wuchang. From 1952 to the mid-1990s, it developed as a strong national medical university, following the Soviet model of a high level of specialization from the beginning of each program, including medical fields, public health, pharmacy and nursing. It also has two teaching hospitals, with a large number of staff.

The merger decision was not highly controversial for Tongji, since most medical school around the country were re-connecting to nearby comprehensive universities, in some cases restoring relationships broken in the reorganization of 1952. Given the support of academician Qiu Fazu, the decision to merge with HUST rather than Wuhan University, was

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<sup>28</sup> Interview with Xu Xiaodong, Provost, 25 May 2008.

<sup>29</sup> Interview with Zhou Guangli, Higher Education Research Institute, 27 May 2008.

accepted, and Tongji began to revise its programs towards greater breadth. Clinical medicine and basic medicine were linked together, and three types of programs were formed – eight year programs leading to doctoral degrees in specialist medical areas, five year programs in areas such as pharmacy and nursing, leading to Masters level qualifications and three year programs in basic medicine to train assistant doctors. All those enrolled in eight year programs now spend their first two years on the HUST campus, with courses in basic sciences as well as social sciences and humanities. Students in five year programs spend one initial year on the HUST campus.

The first benefit of the merger for Tongji is the ability to attract higher quality students nationwide, due to the reputation of HUST and the synergies of the new programs. The second significant benefit has been in research. Tongji faculty have found the research culture at HUST highly stimulating, and they have become much more active researchers, winning significantly higher levels of research funding from the National Natural Sciences Foundation (NNSF) than before the merger. They have also started to participate in many collaborative research projects, linking medicine to engineering and in some collaborative teaching programs. Finally, the management of Tongji has been improved through integration with a well-managed comprehensive university. However, the distance of Tongji's Wuchang campus from HUST in Hankou still creates some obstacles to cooperation.<sup>30</sup>

The view of merger from the Wuhan Urban Construction Institute, on a campus contiguous to the HUST campus, was shared by Professor Du Zhongxian, a former vice president who now serves as assistant to the President at HUST. He reported that there had been lively debates among the university's leadership over whether or not to agree to merge with HUST, before a decision was made by the Party Committee. The Wuhan Urban Construction Institute was one of seven national institutes administered by the Ministry of Construction, and regarded itself as at least third in ranking after parallel institutions in Harbin and Chongqing. It had moved to a new campus in 1983, and had a strong sense of institutional identity, developed in an energetic struggle for survival after the Cultural Revolution. Since there have been many attractive urban construction jobs in recent years, it had been able to attract high quality students from all over China.

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<sup>30</sup> Interview with Ma Jianhui, Vice Provost, 27 May 2008.

For these reasons, some leaders and faculty opposed merger, feeling they would lose their distinctive edge. The majority, however, favored merger. They could see that there was little future for universities under national ministries other than the Ministry of Education. The alternative to merging with HUST was a merger with a provincial university or becoming an independent institution under provincial administration. Since funding per student head is lower at the provincial than the national level, the merger with HUST was definitely more attractive and secure.<sup>31</sup>

Another issue in many mergers of Chinese institutions has been how to accommodate multiple sets of university leaders. Du's personal story was quite interesting in this regard. He was offered major leadership positions in two other universities, one in Sanxiang, a smaller city in Hubei province, and another in the Wuhan Conservatory of Music. While he loved music, and was quite attracted to the second option, he felt he did not want to re-locate at age 52. He was attracted by the HUST ethos, which he described as "practical and down to earth" and wanted to work within the merged university. So he contacted then President Zhou Ji, and offered to serve as President's assistant, and contribute his experience and network in the field of urban construction to campus development for the newly merged institution.

This turned out to be a great decision, as he has had the opportunity of overseeing the re-development of one of China's largest urban campuses, with more than 6,000 mu of land on the combined campus in Hankou, as well as another 600 on the Wuchang medical campus. He has been responsible for considerable campus expansion, which involved complex negotiations with local farmers. He has also overseen major developments – including a new section of the campus devoted to faculty housing, with high quality apartment buildings available for faculty to purchase. This has made a major contribution to attracting and keeping good scholars. He is particularly proud of the new teaching buildings, made to accommodate 45,000 students, and the huge building for the Opto-electronics Laboratory, which was designed by an architect from Beijing.<sup>32</sup>

Du noted that he originally hoped the Urban Construction Institute

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<sup>31</sup> While the national government provides 6,600 Yuan per student per year for the institutions under direct MOE administration, the provincial government provides only 3,000 per student head.

<sup>32</sup> Interview with Du Zhongxian, Assistant to the President, 26 May 2008.

could maintain most of its programs on its own campus, but in the end they had been fully integrated with HUST. Only some years after the merger was a road built that conveniently linked the two campuses. In the meantime, the six departments of the original Urban Construction Institute had been successfully merged, with civil engineering, environmental engineering, computer science and urban construction integrated into parallel HUST colleges, and its own unique departments in planning and construction, also Road and Bridge construction finding a place within appropriate HUST colleges. Before merger, the university had 4,000 undergraduate students but only 7 masters programs and no Ph.D. programs. It has benefited greatly from the new research and graduate training opportunities that the HUST environment offered. Meanwhile Du himself enjoyed his job immensely, and felt proud to be able to use his extensive network of graduates in Wuhan and elsewhere to facilitate the many exciting campus developments.

**Comment [Emily4]:** Ph.D or PhD? Both were used throughout the book. Sorry, should have changed them in the earlier stage, but I still can consistent it if you let me know!

**Photo 10.3:** The Wuhan National Laboratory for Optoelectronics (WNLO), the center of Wuhan Optics Valley, located on the east side of HUST main campus in Hankou, is a cutting edge national platform for inter-disciplinary research in opto-electronics.



If the merger with the Urban Construction Institute was facilitated by geographical proximity and the many overlaps in subject area between the two institutions, the merger with the Medical University brought considerable excitement because of the new horizons of knowledge that it opened up. Both the Provost and Vice Provost spoke enthusiastically about a new six year program about to begin in bio-medical

engineering, with students having one general year, one year in medicine and four years in engineering, and reaching the masters level. There was an awareness of many new job opportunities and developmental areas related to medical technology and hospital equipment which needed this type of personnel.

There was also tremendous enthusiasm about the new areas of research opening up in bio-medical engineering. Vice President Ding told how he had got top level professors from medicine and engineering to sit down and confer with one another at the time of the annual faculty representative council. Out of this had come many new research ideas in areas such as bio-electronics, nuclear medicine and medical instrumentation. HUST has seen a dramatic increase in research funding since the merger, from a total of 253.2 million in 2000 to 479.7 million in 2005, with the balance shifting from 36% in basic funding from prestigious national sources in 2001, to 56% in 2005. The main reason for this change was the research funds obtained from the National Natural Sciences Foundation for medical research projects. In 2007, the medical school received more funds from the NNSF than all other programs at HUST, for the first time. Also HUST's national ranking in terms of NNSF funding moved to No. 4, a significant indicator of the status of its research profile.

The final frontier in terms of the integration of the medical and engineering areas lies with geography. Current HUST President, Li Peigen, grew up on the campus of Tongji Medical University, where both his parents were professors and he had many opportunities for contact with academician Qiu Fazu. This familiarity may have been an important factor in the kinds of integration that have been fostered between the medical and engineering programs, in teaching, research and administration. However, distance between the two main campuses still inhibits full integration.

It was interesting to hear from the Vice-Director of Finance the kinds of consideration under discussion in terms of a merger of the two campuses. He noted that it would be theoretically possible to sell the Tongji campus in Wuchang, for at least 400 million Yuan, and create an entirely new campus for the medical school on land available to HUST. Since facilities were generally better on the HUST campus than in Wuchang, this would be welcomed by the majority of students and faculty. The main issue was what the city of Wuhan might claim in such a sale, and what support it would offer to facilitate campus integration.

While Hubei province had promised 500 million to match the

funding from 98/5 for Wuhan University and HUST, so far none had been received, though 200 million was expected in the following year. By contrast, Guangdong province had given 1.2 billion each to Zhongshan University and South China University of Technology, more than matching what Beijing gave under the 98/5 Project, and the Shanghai government had given 600 million each to Fudan and Shanghai Jiaoda. Nie recognized that Hubei province simply could not afford this level of support. One of its constraints was the fact that it was responsible for a huge number of provincial universities, as a result of the concentration of universities located there in the 1950s, with most former ministry universities now placed under provincial jurisdiction. Even if they could not give adequate financial support, Nie hoped that they would develop policies regarding land sale that would be helpful.<sup>33</sup>

This discussion of the HUST merger experience shows the many dimensions involved in a merger process – curricular, research and administrative integration, campus space considerations, leadership challenges, and the role of personal networks in initial merger decisions and implementation processes. Overall, it seems the HUST merger has been a positive experience, leading to all three major partners being stimulated and extended in both teaching and research. Yet there are continuing challenges of geographical distance and differing campus cultures.

#### *Establishing Second-tier colleges*

Parallel to its positive response to national policy on enrollment expansion, HUST also took a very pro-active role in the establishment of second-tier colleges. Provost Xu Xiaodong noted that it was a policy strongly promoted by HUST's President Zhou Ji, who subsequently became Minister of Education. It was viewed as an important means of stimulating rapid expansion in the private sector of higher education, while ensuring the maintenance of quality standards. For HUST as a top public institution, the main consideration was service to society and the opportunity for their retired faculty to serve.<sup>34</sup> There were economic incentives as well, however.

Vice President Feng Xiangdong noted that there had been intense debates in China over Trow's 1973 article on the move to mass higher education in the later 1990s, and he saw this as crucial to the firm

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<sup>33</sup> Interview with Nie Ming, Vice-Director of Finance, 30 May 2008.

<sup>34</sup> Interview with Xu Xiangdong, Provost, 25 May 2008.



decision on massive enrollment expansion made in 1999. Recognizing that the whole burden of expansion could not be carried by the public sector, and that private universities in the Chinese context were still relatively inexperienced, the MOE had decided to encourage top universities to establish independent colleges, using private investment but ensuring the quality of programs by deploying some of their own faculty and offering the kinds of academic oversight that would make it possible for degree programs to be accredited quickly. Feng saw this as a win-win situation, in that it expanded opportunities for students, enabled top universities to gain some additional income and also generated a profit for investors. At the same time he hastened to add that he recognized that the policy created an uneven playing field for competition between fully private universities and the independent colleges of top public institutions. This was regrettable, yet unavoidable, in his view.<sup>35</sup>

Why did HUST decide to take up this challenge? They could have refused, but they saw it as an opportunity to make a practical contribution to enrollment expansion locally, as well as generating significant income. The first college established was named the Wuchang Branch College, and three years later Wenhua College was established, close to the HUST campus in Hankou. Both are independent legal persons with their own property, and both have developed well, with total enrollments close to 30,000 students by 2005. Many retired HUST professors have been teaching in the two colleges, but they are also developing their own faculty contingent, and have practical programs related to the local employment market. Students get a graduation certificate from the college but a degree from HUST, something that is most attractive. A small number are able to pass entrance examinations for Masters programs at HUST. One of the controversies that has given rise to serious student activism in recent years is the demarcation of the university degree as linked to a second-tier college, which students see as devaluing the credential.<sup>36</sup> For HUST's two colleges there have been no serious

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<sup>35</sup> Interview with Feng Xiangdong, Vice President, 29 May 2008.

<sup>36</sup> Student protests took place in several second-tier colleges in recent years. For example, in June of 2006, students in Zhengzhou University's Shengda Economics Trade and Management College protested the fact that their degrees specified that this was the second-tier college of Zhengzhou University, not the university itself. They had serious concern about the value of the degree in the eyes of employers (See news report by BBC on 21 June 2006: <http://news.bbc.co.uk/>

protests so far, and they expect to be conferring their own degrees very soon. The whole process is regarded as transitional, with an established university supporting the birth of new private institutions.

### **Finance and Governance**

Executive Vice-President Ding Hanchu explained how key reforms of the early 1990s affected the university's finance and governance. It was already noted earlier that only 25% of its budget comes from direct governmental allocations, down from 48% in 1990. While faculty salaries had originally been paid directly out of a government budget line, now universities receive government allocations on the basis of enrollment size, and have to be responsible for their own budget. One of the significant burdens is the high percentage of retired faculty, whose salaries, housing and health care come out of the university budget, with only a small contribution from government. With rising living standards, it is a demanding task to cover the whole range of budgetary areas, including items such as retiree salaries and health care, the costs of attached schools on campus, faculty housing and campus development. Students are fully aware that their fees make up a significant portion of the university's income, and university leaders are concerned about possibilities of student protest, if they feel their fee income is being diverted to subsidize budget items unrelated to teaching and facilities. This sense of accountability to students as primary clients and supporters of the university is something quite new and challenging.

The same thing is true for faculty and issues of governance. The Provost explained the main governance process in the following way. The major decisions on vision and mission are made by the University's Communist Party Committee, while high level committees on finance, policy, curricular development, scholarship and related areas, chaired by vice-presidents, make more specific development decisions. Overall, the style of governance mirrors Chinese tradition, with the following order – heaven (天), earth (地), the ruler (君), parents (親) and teachers (師). First of all, the laws of nature must be respected (heaven and earth), then the ruler – once the emperor, now state leaders, then parents and finally teachers. As provost, he is responsible for the committee on curricular development, and if the responsible vice-president is not available to

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[chinese/simp/hi/newsid\\_5100000/newsid\\_5100900/5100988.stm](http://chinese/simp/hi/newsid_5100000/newsid_5100900/5100988.stm)). Similar cases were also seen in Shanxi, Anhui, and Jiangxi.

chair a meeting, he will invite a respected academician to do so.<sup>37</sup> In spite of this traditional authority structure, Xu emphasized the fact that no individual leader can dominate decision-making, and faculty interests and concerns have to be carefully considered. There is clearly a sense of accountability on the part of the leadership not only to students but also to faculty.

## Faculty and Issues of Teaching and Research

### *The faculty profile*

HUST's faculty profile has changed considerably over the period from 1990 to 2005, as can be seen in Table 10.1 below. Total faculty numbers dropped between 1990 and 1995, rose significantly after the merger in 2000, while falling somewhat again by 2005. The student faculty ratio rose gradually between 1990 and 2000, then reached a high of 1:19.6 in 2005. The huge expansion in graduate enrollments, with self-paying masters' and doctoral students bringing in significant income, led to rising concern over the quality of graduate supervision.<sup>38</sup> As a result, graduate student numbers were cut back from 25,484 in 2005, to 20,044, as reported on the HUST website in 2008.

**Table 10.1 Statistics on Faculty and Teacher-Student Ratios (1990-2005)**

	1990	1995	2000	2005
Total Number of Faculty	2,604	1,758	3,231	3,081
Faculty-student ratio	1:4	1:6.6	1:8.6	1:19.8
Full professors (%)	7	15	20	24
Associate professors (%)	34	39	34	34
Assistant professors (%)	36	35	27	33
Teaching assistants (%)	24	11	18	9
Faculty with PhD (%)	2	8	13	28
Female Faculty (%)	23	25	25	32

Other significant changes in the faculty contingent can be seen in the proportion of faculty at different academic levels. In 1990, only 7% of all faculty were full professors, but this rose to 24% by 2005, while the

<sup>37</sup> Unlike the situation in Western universities, the provost is usually not vice-president, but is responsible for all teaching programs.

<sup>38</sup> Interview with Zhou Guangli, 27 May 2008. Zhou was asked to do a research project on the quality of graduate supervision and discovered one professor who was supervising 47 doctoral students. Since then the university has limited the number of doctoral enrollments.

category of teaching assistants dropped from 24% to 9% over the same period, with a balanced number of faculty in the middle ranks of associate and assistant professor. By 2005, 28% of all faculty were PhD holders, up from a mere 2% in 1990, a significant indicator of a more highly qualified faculty. Female percentages had also increased significantly from 23% in 1990 to 25% in 1995 and 2000, and 32% in 2005.

The hugely expanded graduate programs were clearly important for the development of young faculty, and we were told that their goal was to attract one third of new faculty with doctoral degrees from abroad, one third from other universities and one third from among their own graduates.<sup>39</sup> While they admired the Beida policy of making no appointments from among their own doctoral graduates, this was not practical in the Wuhan context. Even keeping their own excellent graduates was often difficult, given the attraction of job opportunities in coastal cities such as Shenzhen, Guangzhou and Shanghai. One of the factors that was helpful in attracting good faculty was the newly built faculty housing complex, with good quality apartments that could be purchased at a reasonable price.

### *Issue of Teaching and Research*

When asked how the university maintained teaching quality in face of the rapid expansion of enrollments, the Provost first called attention to the three capacious new teaching buildings, which could accommodate 45,000 students, as well as the fact that 60 million had been spent on new laboratories and 80 million on new equipment since 2002. He was concerned about class sizes, and explained that he hope to bring classes of 150 down to 100, and classes of 120 down to 80. However, this meant each faculty had to teach more classes, which reduced their research time.

One of the initiatives of recent years has been the establishment of the Innovation College (創新學院), a special group of 60 outstanding undergraduate students who are given an integrated exposure to the arts and basic sciences with a strong theoretical foundation, such that they can complete their undergraduate courses in three years and spend the fourth year on a special project or begin graduate courses. Another initiative has been the provision of funding for undergraduate students to take part in research. For example, the Department of Electronics has provided a budget of 300,000 Yuan, with some additional funding from indi-

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<sup>39</sup> Interview with Feng Xiangdong, Vice President, 29 May 2008.

vidual professors, for student research projects. Additionally, since 2006 more than 70 students have succeeded in applying for the research funding sponsored by the MOE's National Program of Undergraduate Innovation Training each year, with an average of 10,000 Yuan per project.<sup>40</sup>

#### *Perspectives from Faculty and Student Counselors*

Our faculty focus group meetings involved three faculty members and three student counselors. Counselors are having more and more professionalized roles, with many having master's degrees in psychology and related areas, rather than being political appointees with responsibility for political education, as in the past. The "second classroom (第二课堂)" is an important new concept, emphasizing the wide range of student learning experiences that take place through activities on campus or in the wider community rather than formal study. Faculty members came from the Departments of Physics, English and Mechanical Engineering, while two of the counselors came from the Optical-electronics Department and one from Mechanical Engineering.<sup>41</sup>

One faculty member started with a lively defense of HUST's role in developing its two second-tier colleges, noting that it was a significant contribution to social change, and there were some parallels with HUST's own development in the early 1950s, on the basis of departments brought in from other universities. Two other faculty members had had experience in teaching in HUST's second-tier colleges, and one commented on the poor quality of the students and the fact that they were passive and did not raise questions. The other argued that some of the students were actually better than the lowest level of student in HUST itself, and some had succeeded in getting into a graduate program at HUST. Wenhua, the second college to develop, had learned important lessons from the Wuchang experience and made improvements, especially in the development of practical programs linked to local employment needs.

A second topic that came up in discussion initiated by two faculty members was the quality and expectations of contemporary students.

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<sup>40</sup> Interview with Xu Xiaodong, Provost, 25 May 2008.

<sup>41</sup> The decision to include three counselors, alongside of three faculty members, in the Faculty Focus Group was made by Professor Chen Min, one of our two collaborating scholars at HUST, on the grounds that it was important for us to learn about informal education and the 'second classroom' as well as the more formal aspects of education under faculty direction.

Many come from good secondary schools and they put high demands on the faculty. They want to see courses updated each year, the latest technology being used in teaching and the opportunity for questioning and participation in class. One of the counselors agreed that students are now much more active than they were when he graduated in 1999, with a lot of their attention being given to independent study and research projects, also various organizations set up by students themselves.

The professor of English felt that today's students have a sense of world citizenship and are eager to reach out and communicate with the wider world. She sees them as future ambassadors for China, who will bring a positive image of China to the world, and explain its culture and achievements. This awareness inspired her to develop a new approach to teaching English for all students, with three different levels, so that students across all fields can take classes that are appropriate to their level of English ability. Her new English teaching program has now begun to have an influence nationwide. She was also cooperating with the College of International Education to provide a program for 66 undergraduate students who are doing their first two years of study at HUST, and will continue with the second half of their university studies abroad. Students for this program come from mechanical engineering, computer science, electronics, and electrical equipment. Some of these students are expected to stay abroad and create positive linkages for cooperation between China and Western countries.

The three counselors noted that students have a strong sense of responsibility as well as gratitude for the learning opportunities they have and a desire to give back to society. In face of the Wenchuan Earthquake of May 12, 2008, students had organized fund-raising activities and were extremely eager to volunteer practical help. Students were also very active in taking the opportunities provided for research at the undergraduate level and the various networks that have been set up to encourage students to exchange ideas and initiative innovative projects. The other side of this openness to new forms of media and communication was a tendency among some students to become addicted to the internet in ways that interfere with their studies.<sup>42</sup>

Overall, our discussion with faculty members and counselors gave us a sense of a very lively community of learning, in which students are more and more pro-active and there are significant pressures for im-

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<sup>42</sup> Faculty Focus Group Meeting, 27 May 2008.

provement in teaching, both from students and the administration, and for balancing the demands of teaching and research. The role of counselors in promoting informal kinds of learning is significant, but they too feel the stress of numbers, with one counselor responsible for 300-400 students.

### Student Perspectives

There were eight students in our student focus group, two from mechanical engineering, two from opto-electronics, one from physics, one from law, one from management and one from foreign languages, with four female students among them, and four from rural family backgrounds. Most were undergraduate students, but there were two in the first year of a masters program. They had received our interview questions ahead, thought about them and had a great deal to say. We will summarize their perspectives under the themes of cultural identity, civil society and civic participation, equity and employment issues.

#### *Cultural identity*

Several students spoke rather passionately on issues of Chinese cultural identity and the university's role. They were aware of the university's mission and felt it was important for the leaders to demand rigorous standards of scholarship and to improve the university's facilities accordingly. It was important for the university to reach international standards and represent Chinese culture on a world stage. It was interesting to see the student from foreign languages, who was studying English, put forward a view that paralleled that of the faculty member who had been developing new approaches to the teaching of English. Here is how she expressed herself: "Until recently, there has been a strong sense of inferiority among Chinese, with a great deal of writing that reflects the attitude that the moon is fuller in the West than in China, the social systems and standards of living are better etc.... But now that the Chinese economy has surged ahead, Chinese people have more confidence in themselves, they are more objective in making comparisons than they used to be and have a greater sense of their own history and the quality of their people."<sup>43</sup> She made the point that learning English well was crucial to being able to communicate aspects of Chinese culture and society to the world.

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<sup>43</sup> Student Focus Group Meeting, 26 May 2008.

Other students agreed with this, and there was some discussion about the advantages of comprehensive universities such as Wuhan University and Nankai University having a real history to draw upon and some historic buildings, while they were a young university, without this background. “We long for a sense of history, as a basis from which new ideas can be drawn. At the same time, our shorter history has some advantages. We are more open to reform and it is easier for us to be open and move forward .... We always think of (former president) Zhu Jiusi and his incredible spirit of reform – this is the greatest influence in our university’s history.”<sup>44</sup>

**Photo 10.4: The outdoor old theatre, located in the central area of the main campus still had a rusted sign on its front entrance with HUST’s original name, the Huazhong Institute of Technology.**



Students went on to speak about university buildings and spaces that expressed their ethos. One spoke of the South First Building with the Mao statue, with a special appreciation, noting that he was from Hunan, the birthplace of Mao Zedong. Several spoke of the character of the campus, with its straight roads going precisely North and South, East and West expressing the engineering mind. “This is our trademark,” they said. Another campus space which students identified as very important to them was the outdoor movie theatre, which had been built in the 1950s. Recently, university leaders had planned to tear it down for new campus

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<sup>44</sup> Student Focus Group Meeting, 26 May 2008.



developments, but there was strong student resistance, and the development plans have been cancelled. Students identified this as a place of many meetings, as well as movies and entertainment, a place graduates always visit when they return to campus, an important place in their memories.

Students also made reference to Yang Shuzi, who had been president from 1992 to 1997, and was credited with starting a national movement of cultural enrichment for university students. In 1994, HUST launched a program of humanistic education and made itself the first university that established a research base in humanistic education for all students at the undergraduate level. The student from the Physics Department noted how important he found the general humanities courses he had taken in areas such as history, law and philosophy. All of the students had a sense of the combination of cultural awareness and responsibility with a cutting edge scientific and technological environment that characterized the HUST ethos.

#### *Civil society and civic participation*

Students were critical of their university leaders, suggesting that the university's vision and mission largely consisted of "empty words (空話)." They felt they did not have much opportunity to communicate with the leadership, and were not in touch with the strategic directions. For them, it was crucial that facilities should be improved, equipment upgraded and the quality of the learning experience be given importance. They felt the leadership was accountable to deliver a high quality educational experience, given their capabilities and status as students and the fees they were paying. It was interesting to see how different their attitudes were from those of students in the old planned economy, who were more passive and subordinate.

All of the eight students talked enthusiastically about the different societies and social groupings they belonged to. They explained that there were two main types, those officially organized by the Youth League or the student association at university, college or department level, and those which were started up by students' own initiatives. Those formally organized covered many areas, including such social services as visiting the elderly, supporting orphans, helping with rural development projects, and protecting the environment. Most activities were well organized and sometimes even competitive in terms of participation, with first and second year students taking part enthusiastically,

but upper year students often less active. Students also mentioned activities closely related to their professional studies, which they particularly appreciated. One was a program organized by students in the college of law, whereby they educated people in rural areas about their rights and the law, to empower them and ensure they were not exploited by local government cadres. Another program was fostered by the Sociology Department, and offered training and internship opportunities in the area of social work.

One of the entirely self-organized activities that students were particularly proud of was a bike ride from Athens to Beijing, which had been led by an alumnus who was good at fund-raising and organizational work, and had attracted a large number of students to participate. Other students mentioned hiking expeditions within China, which had enabled them to get more familiar with the conditions and needs of rural society.

It was clear that students were deeply concerned about social issues, and eager for opportunities to participate and contribute. Nevertheless, they felt constrained by the demands of their studies, limited resources and concerns about the future and preparation for employment.

### *Equity Issues*

Students' comments on issues of equity were particularly striking. Several students from rural backgrounds emphasized how important the expansion and move to mass higher education had been for rural youth. One made the following comment: "Just imagine if only 100 places had been given, instead of 200, how many young people would have been excluded .... All of these young people will become parents and with their own improvement from university study, they will make a huge difference for their children. The whole of society is being uplifted by the move to mass higher education, and people will have a much greater capacity to transform themselves and the younger generation." Another said, "Mass higher education has changed people's ideas about what it means to be a university student. This is no longer a matter of elite status, rather of responsibility as a citizen, where one is expected to make a difference, also of the overall quality of people being improved." A third student made reference to a comment by former President Zhou Ji who clearly influenced HUST's massification policies and decision on second-tier colleges: "If we do not have an increase in numbers, we cannot have

quality.”<sup>45</sup> The point was that China cannot transform itself by depending on the leadership of a few top people, but the quality of the whole of Chinese society had to be raised.

Generally, students felt the unified national entry examinations were essential to fairness in terms of university entry, yet they noted that the system could not be truly fair until educational opportunities at the basic and secondary level were more equal. Thus it was most important to ensure that economic development reached the more remote and poor parts of the country, and that the quality of education at the basic level be improved.

### *Employment issues*

One student started this topic by saying that employment should not be seen as a zero-sum game where the elite kept all the best job opportunities to themselves, but an open playing field where all could compete for good jobs. Society needed to have the kind of order that allowed for this competition, and ensured no-one was held back artificially by a refusal to expand higher education enrollments. Students commented that it was relatively easy for graduates of nationally prestigious institutions such as HUST to find suitable jobs, but more difficult for graduates of local and private universities. At the same time, the employment market had changed in recent years, so that qualifications were not the only consideration, but effort, performance and results were rewarded.

“There are many more opportunities for young people to prove themselves in a market oriented society than was the case in the planned society of the past .... The expansion of enrollment has allowed a lot more young people to take part in the competition and it is good for them and for society. There is also greater pressure on young people to compete and make a great effort to show their quality and contribution. This is all for the greater good of society.” One student even made the comment that: “I think the devaluation of university degrees is a good thing; as people realize that their efforts can make a difference, a lot of energy has been released and people want to compete .... This is a big change from the old times when everything was planned and effort did not make a difference.”<sup>46</sup>

Overall, we found this group of HUST students to be thoughtful,

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<sup>45</sup> Student Focus Group Meeting, 26 May 2008.

<sup>46</sup> Student Focus Group Meeting, 26 May 2008.

highly motivated, and very conscious of the fact they were living and studying in an era of dramatic change for China – both in its internal socio-economic system and in its international status and role. There was a sense of responsibility to society and the world that paralleled the demands and expectations they put on their institution and its leaders.

### **Conclusion: HUST as a Microcosm of Higher Education Development in the New China**

A number of our interviewees made the comment that HUST was a microcosm of higher educational development in the new China. It was born shortly after the revolution of 1949, and its development and contribution reflected the phases of change in China over a period of nearly sixty years: socialist construction, the cultural revolution, modernization and globalization. In the 1950s, HUST was one of the new polytechnical universities that was to train a large number of engineers who would bring China up to world standards in technology while adhering to the “socialist road.” In the Cultural Revolution, HUST saw most of its faculty sent down to learn from the peasants in rural areas, and its leadership under attack. However, it was one of the first institutions to take up Deng Xiaoping’s call to serve “modernization, the world and the future” after the end of the Cultural Revolution, with the result that it developed a new model of a comprehensive university in the late 1970s, and pioneered the integration of research and teaching. As China moved onto a world stage in the 1990s, HUST leadership saw the need for an explicit cultural identity, and the potential of broadly based cultural studies for all undergraduates. In the early 21<sup>st</sup> century, HUST was proud to be a leader in massification of enrollments, and the integration of teaching, research and new technological and industrial developments.

There was a strong sense of its leadership responsibility at each stage of development, and this was a matter of pride among faculty and students. There was a widespread awareness of the innovations brought about by Zhu Jiusi, which pre-dated national university reforms of the mid-1980s, as well as pride in the movement for cultural rejuvenation brought about by Yang Shuzi in the 1990s. This sense of responsibility to lead probably also lay behind the decision on massive expansion of enrollments and the establishment of two leading second-tier colleges. There was further tremendous pride in HUST’s successful industrial leadership, in spawning successful high-tech companies, in hosting one of five National Laboratories and in helping to create the Wuhan Optics Valley.

What we see in the HUST ethos is a spirit of realism that embraced both the scientific and political dimensions of new China. It asserted itself and took leadership at every stage of China's development, helping to nurture new and cutting edge scientific and technological knowledge for socialist China. As a microcosm of the development of new China's higher education, HUST showed how necessary was the break with history that came about in the revolution of 1949. At the same time, it has also demonstrated how essential China's traditions had been to the achievements of a new era of globalization and how important it has been to bring them explicitly into curricular development. This balance of innovation and tradition may lie behind the phrase used by both leaders and faculty in describing the Huazhong spirit: "If you want to immerse yourself in learning, come to Huazhong."