Historical Perspectives and Contemporary Challenges:

The Case of Chinese Universities

Weifang Min

Universities in China have undergone dramatic changes in recent years, including rapid expansion of enrollments, structural reforms, and quality improvement. Many of the national universities have targeted becoming "world-class" institutions and have made significant progress. These changes in Chinese higher education have taken place in the context of an expanding Chinese economy, which has maintained an average annual GDP growth rate of 8 percent for the past two decades. The implementation of economic reforms and an open-door policy have helped the Chinese economy to become more integrated into the international economy. Chinese higher education has increased its degree of interaction with universities in other countries and now functions as part of the international academic community. To understand the challenges universities in China will face in the future, it is necessary to examine their historical development and current realities.

An Overview of the System

The current Chinese higher education system is one of the largest in the

world, with more than 3,000 universities and colleges—including 1,225 regular full-time universities and colleges, 686 adult higher education institutions, and 1,202 new private universities and colleges. The system encompasses 13 million students and over 1.45 million staff members, 554,000 of whom are faculty members. The predominant public sector enrolls about 12 million students and the recently developed private sector, about 1 million students. The public sector consists of two major components: regular higher education, which includes 7.19 million students, and adult higher education, which includes 4.55 million students. Regular higher education institutions comprise universities with both undergraduate and graduate degree programs and short-cycle (two- or three-year) colleges without degree programs. Adult higher education institutions include television-based universities offering a variety of programs, workers' universities for training and upgrading employees, peasants' universities for training and upgrading farmers, colleges of management for training and upgrading administrators and Communist Party cadres, educational colleges for school teachers and administrators, and independent (private) correspondence colleges. Adult higher education is provided in both part-time and full-time programs, some of which offer bachelor's degrees. They usually have no advanced degree programs. Table 1 provides statistics on China's higher education system.

Table 1 The Chinese Higher Education System, 2001

Type of Institution	No. of Institutions	No. of Students
Graduate education institutions	728	393,200
Graduate programs at universities	411	371,600
Graduate programs at research institutions	317	21,600
Undergraduate education institutions	3,113	12,880,900
Regular* higher education institutions	1,225	7,190,700
Universities	597	5,212,000
Short-cycle colleges	628	1,978,700
Adult higher education institutions	686	4,559,800
TV universities	45	400,300
Workers' colleges	409	351,100
Peasants' universities	3	800
Management training colleges	104	153,900
Educational colleges	122	304,400
Correspondence colleges	3	15,500
University-run adult higher Education programs		3,333,800
Private higher education institutions	1,202	1,130,400

Note. From Department of Development and Planning, Ministry of Education of China, 2002.

*Regular higher education institutions comprise universities with both undergraduate and graduate degree programs and short-cycle (two- or three-year) colleges without degree programs.

In 2001, among the total enrollments at regular higher education institutions, students majoring in engineering accounted for 34.6 percent, in the humanities 15.5 percent, in management 14.2 percent, in the sciences 10 percent, in medicine 7.4 percent, in law 5.4 percent, in education 5.2 percent, in economics 5.0 percent, and in agriculture 2.6 percent. Engineering majors have accounted for the largest proportion of students since the 1950s and are still the largest single group at present. The current trend is that the number of students in management, law, economics and other applied fields is increasing rapidly, while enrollments in the basic sciences and the humanities are declining, in response to the labor market (Ministry of Education, 2002).

Historical Background

Indigenous Higher Education

China's very long higher education tradition evolved along with Chinese civilization. The earliest Chinese state was established in the Xia dynasty (about 2200 B.C.). From the beginning, Chinese culture attached great importance to education, as recorded in ancient Chinese writings: "To establish a nation state, education should come first." "A man without education cannot be a knowledgeable and moral man." These values and this belief system have continued to exert a significant influence on Chinese people's character, thinking, and behavior for thousands of years down to the present time. For example, one of the current national policy goals is to invigorate the country through education

and science.

Chinese higher education originated as early as 1100 B.C. during the Zhou dynasty. It was called *pi-yong* then. During the Han dynasty (206 B.C. to 220 A.D.); higher education institutions were called *tai-xue,* which means institutions of higher learning, and were attended by more than 30,000 students, during the dynasty's most prosperous time, at its main campus in Changan, the capital city (Wang, et al., 1994). During the Tang dynasty (618–907 A.D.) and afterwards, Chinese universities were called *guo-zi-jian*, a type of higher education institutions established for the children of the royal families and senior officials. The content of learning was drawn mainly from the classical texts of Confucian teachings, which were also the dominant contents of the imperial examinations for senior civil service positions.

In addition to these ancient universities established by the Chinese state, which continued to exist until late 19th century, private universities also flourished in ancient China. Actually, Confucius (551–479 B.C.) himself introduced private higher education in China during the Eastern Zhou dynasty, at a time when the state institutions were becoming weaker. It was recorded that Confucius had more than 3,000 students. It became fashionable to run private learning institutions during this time, and many leading scholars at different schools operated their own institutions. When speaking of ancient private institutions of higher learning, one must mention *shu-yuan*. These institutions started to appear during the Tang dynasty (618–907 A.D.), when they were first established in both

the state and private sectors a places for collecting books. *Shu-yuan* were not places for teaching and learning initially but gradually developed into private academies or scholarly societies, as an alternative to official higher education institutions, eventually becoming a dominant type of private university throughout the country during the Song dynasty (960–1279 A.D.). S*hu-yuan* played a very important role in ancient Chinese higher education and continued to function until the early 20th century. As Ruth Hayhoe suggested, the *shu-yuan* of ancient China may have been similar to the medieval universities of Europe (Hayhoe, 1989). In short, indigenous higher education in China had a long tradition going back 3,000 years, encompassing both public and private sectors of higher learning. However, constrained by feudalism, traditional Chinese higher education was only able to develop slowly.

Modern Universities and the European Model

Although the indigenous tradition had a significant impact on Chinese higher education, modern Chinese universities developed from the European model. This process involved a long and even painful interaction with the West after the Opium War in 1840, when the Western powers opened China's doors by gunboats. This opening made Chinese intellectuals aware of advancements in science and technology of the West and of the backwardness of China, which they in their conceit viewed as the "Central Kingdom" of the world. The impact of the European university model on China worked through three major channels: the

establishment of Western missionary colleges in China, the study abroad programs for Chinese scholars and students started in the late 19th century, and the modernization efforts of Chinese reformers.

As the Western powers gained the right of entry into China, the introduction of the Western university model on Chinese soil took place. Many foreign groups tried to create higher education institutions in China—including French Jesuit missionaries, American Protestants with the cooperation of British and Canadian colleagues, and German industrialists. By 1949, there were 21 universities run or subsidized by foreigners—including such influential institutions as Yenching University in Beijing and St. Johns University in Shanghai. Among the total of 205 higher education institutions in the country, foreign universities accounted for about 10 percent and enrolled about 10,000 students. The higher education models introduced by the missionaries and other foreign groups influenced the development of modern higher education in China, but they were "largely peripheral to the mainstream higher education reforms being engineered by a modernizing Chinese leadership. They did not look to missionary efforts for inspiration in their reforms, but visited or sent delegations to the nations whose educational institutions were of interest and modeled their reforms directly on foreign experiences" (Hayhoe, 1989).

One of the important ways in which the European university model influenced Chinese higher education was the study abroad programs for Chinese scholars and students. Seven years after the 1840 Opium War, three young

students—Rong Hong, Huang Kuan, and Huang Sheng—followed their teacher, Samual Robinns Brown, to the United States for university studies in 1847—the first Chinese to do so. Rong Hong received his bachelor's degree from Yale University and returned to China in 1854, becoming the very first Chinese person to have received a university education in a foreign country. Through the efforts of Rong Hong and others, in 1872 the Chinese government decided to send a group of 120 students to the United States, initiating the country's first official study abroad programs. This was followed by programs that sent students to the United Kingdom and continental European countries. In the wake of increased Japanese influence in China, many Chinese scholars and students went to Japan, where they experienced the European university model with a Japanese imprint. In the late 19th and early 20th centuries, more than 10,000 Chinese students studied in Japan. They would constitute a very significant phenomenon in Chinese higher education. A large proportion of the returned students worked in the Chinese higher education system as teachers, researchers, and administrators—becoming a driving force in the development of Chinese universities.

One of the modernization efforts introduced in China after the Opium War was the movement to adopt the Western university model and to promote the learning of Western science and technology as a response to foreign aggression. From the 1860s to the 1880s, Western-style military and naval academies and foreign language institutions were established in China. In 1898, as one of the

major reform strategies, Capital Metropolitan University—the predecessor of Peking University—was established by the state. It was the first modern national comprehensive university in China and became a milestone in the development of the Chinese higher education system.

According to 1902 educational reform legislation, Peking University was regarded as the leading institution of higher learning in China, and it was expected to provide leadership for all schools in the country. However, in the context of the corrupt and weakened feudal Qing dynasty, modern Chinese universities were constrained from further development. Peking University achieved very little during its first 10 years. A new institutional environment and new leadership for Chinese higher education were needed. It was during the presidency of Cai Yuanpei that Peking University became the first truly modern Chinese university. Cai Yuanpei studied in Germany during 1908 to 1911. After the Revolution of 1911, the provisional government established by Sun Yat Sen appointed Cai Yuanpei as the first minister of education in China. Drawing on his experiences as a student in Germany, he introduced the European university model to China through his involvement in formulating the 1912 education reform legislation. In 1917, after his return from his second period of studies in Germany and France, Cai Yuanpei was appointed as the president of Peking University (Hayhoe, 1989). As president of the university, he promoted institutional autonomy and academic freedom. He also emphasized arts and sciences, instead of ancient classics, as core curriculum areas, patterned after the

Western university model.

In 1922, new educational reform legislation was implemented that reflected greater influence of American university traditions. The American 6-3-3-4 schooling system—that is, six-year primary school, three-year junior high school, three-year senior high school, and four-year college—was adopted in 1922 as the basic system of teaching and learning. This schooling system functioned until 1949 and retains a strong impact on education at present in China. Since China suffered from continuous foreign invasions and civil wars before 1949, the economy was extremely backward, people were very poor, and higher education had developed very slowly. By 1949, China had only 205 higher education institutions—124 public universities and colleges, 21 missionary universities and colleges, and 60 private universities and colleges (including short-cycle colleges), with a total enrollment of 117,000 students.

Universities in the New China, 1949–1978

Soviet Influences in the early 1950s

After the founding of the People's Republic of China, the central government took over and nationalized all higher education institutions. All private universities and colleges were brought under the jurisdiction of either the central or provincial governments by 1952. During this period, missionary-based universities and colleges, which represented the foreign educational presence and influence in China, were regarded as perpetrators of Western cultural imperialism.

Thus they were shut down and their academic components were merged into the public universities. For example, Yenching University's College of Arts and College of Sciences were merged to become Peking University; the Department of Education became Beijing Normal University; and the Department of Chemical Engineering became Tianjin University. St. Johns University's Department of Architecture became Tongji University; the medical programs became Shanghai Second Medical College; and engineering departments became Shanghai Jiaotong University.

After all universities and colleges became state-run institutions, the higher education system was then reorganized and restructured according to the Soviet model. The reorganization was based on the belief of the leadership that the higher education system, as one part of the superstructure of the society, should be integrated with the economic base of the country. Since China was engaged in building a socialist centrally planned economy, it would need to change its higher education system accordingly. Thousands of Soviet experts were sent to China in all fields to assist the country develop the planned economy. Large numbers of Soviet scholars came to teach at Chinese universities and colleges, and Soviet educational administration specialists provided assistance with structural reforms of universities. Many Soviet curricula, course syllabi, and textbooks were translated into the Chinese language and widely disseminated and used in China. As in the Soviet system, the policy objective in China was to bring all higher education institutions under the leadership of the government. National unified

instructional plans were implemented in all colleges and universities throughout the country, so that the higher education system would closely serve the manpower needs of a centrally planned economy. Indeed, the reorganization following the Soviet model promoted higher education development in China and contributed to the industrialization and development of the centrally planned economy of the 1950s.

China's adoption of the Soviet model meant that specialized higher education institutions were established and that the Chinese higher education system became more departmentalized and segmented under different central-line ministries. For example, Beijing Agricultural University came under the jurisdiction of the Ministry of Agriculture, Beijing Forestry College under the Ministry of Forestry, Beijing Chemical Engineering College under the Ministry of the Chemical Industry, Beijing Metallurgy College under the Ministry of the Metallurgical Industry, Beijing Geology College under the Ministry of Geology, Beijing College of Mines under the Ministry of the Mining Industry, and so on. There were a total of about 60 ministries in the central government, each operating its own higher education institutions. Existing universities and colleges also became more specialized. Some comprehensive universities became specialized engineering institutes, and their schools of arts and schools of sciences were removed. Some comprehensive universities retained their identities as comprehensive universities—for example, Peking University—although its Agriculture College was moved out to form Beijing Agriculture University and its

engineering departments were transferred to other specialized technical institutes.

Along with the Soviet higher education model, the Soviet-oriented research system was also adopted in China with the establishment of the Chinese Academy of Sciences (CAS), which formed an independent national research system with hundreds of research institutes throughout the country. The major research function of the country was carried out by these institutes, which were separate from the Chinese higher education system. Large amounts of research funding went to the CAS instead of to the universities. The institutional structure of the Soviet research model, which separated research from the teaching of young people, significantly reduced the research capacity of Chinese universities—resulting in wastage of scarce human, physical, and financial resources. For example, while Peking University had a very strong Department of Mathematics, the CAS established another large institute of mathematical research nearby in Beijing; and while Peking University had a very strong Department of Chemistry, the CAS set up a research institute in chemistry next door to the university. Although many Chinese scholars and professors recommended closer cooperation between the Chinese universities and the CAS and better integration of teaching and research since the late 1950s, the CAS is still functioning rather independently of the universities. When the CAS received a larger share of national research funding, research universities would get a smaller piece of the pie. The legacy of the Soviet research system has had a very strong impact on the Chinese higher education system, especially in terms of the development and strength of the

country's research universities.

Among the far-reaching influences of the Soviet higher education model in China were departmentalization, segmentation, overspecialization, and the separation of teaching from research. These traits shaped the structure of the contemporary Chinese higher education system until the 1990s, even though they were criticized during the late 1950s and attacked during the Cultural Revolution that lasted from 1966 to 1976. They became the main targets of higher education reform during the transition from a centrally planned to a dynamic market economy.

The Great Leap Forward, 1958–1960

With the adoption of the Soviet model, the Chinese government had formulated and implemented the First Five-Year Plan for Economic and Social Development (1953–1957), which formed the basis for a national manpower plan. A higher education development plan was also implemented. Students represented products in a centrally planned economy, and the plan introduced national unified instructional plans, syllabi, and textbooks. It was a very rigid system. In 1958, after the completion of the first five-year plan, the Chinese government launched a nationwide mass movement for economic development—the Great Leap Forward for Socialist Construction. The plan triggered the so-called Great Leap Forward in Higher Education, which lasted approximately three years. The policy objective was to increase significantly the number of

universities and colleges and expand higher education enrollments to match the ambitious economic growth plan.

This Great Leap Forward deviated somewhat from the rigid Soviet model. It reflected the impetuosity of the Chinese leadership with regard to economic and educational development but was also a reaction to the regimentation, overspecialization, and fragmentation of knowledge in the Soviet system. During the period, the number of higher education institutions increased from 229 in 1957 to 1,289 in 1960. Within three years, more than 1,000 new universities and colleges were established and total enrollments increased from 441,181 to 961,623. Such a dramatic expansion caused many problems for the Chinese higher education system in the 1960s, such as those of low efficiency and quality. These problems, together with the worsening of the Sino-Soviet relationship and serious economic austerity in the country starting in the early 1960s, led to a readjustment of higher education development policy. Accordingly, in 1961 the Ministry of Education cut down the number of higher education institutions and consolidated the newly established small universities and colleges. In three years, the total number of institutions had decreased from 1,289 to 407 between 1960 and 1963. From 1963 to 1965, Chinese higher education emerged from the period of hectic expansion and difficult reorganization, and both the quality of instruction and institutional efficiency were improved by 1965.

The Cultural Revolution

Only a few years after the Chinese higher education system was put on track toward steady and healthy development from 1963 to 1965, the so-called Cultural Revolution broke out in 1966. It was a nationwide political movement that had a profound impact on Chinese higher education. Universities and colleges were attacked as places disseminating ideas that combined Soviet revisionism, Western bourgeois ideologies, and traditional feudalism. The Cultural Revolution negated almost everything in the existing higher education system, including the Chinese historical academic traditions, Western academic influences, and the Soviet academic model. Universities and colleges were stopped from enrolling undergraduate students for more than 4 years, and no postgraduate students were enrolled for 12 years. The national college entrance examinations were abolished, and many universities and colleges were closed down. After 1970, some higher education institutions started enrolling "worker-peasant-soldier students," based on political criteria and without considering their academic qualifications. Not only did the quality of instruction deteriorate, student numbers also declined dramatically. The total enrollments decreased from 674,400 in 1965 to 47,800 in 1970. These developments resulted in a serious shortage in well-educated specialized manpower. The reasons for the Cultural Revolution and its policy objectives were political rather than educational. The higher education sector was the most severely afflicted area in the society.

In the 30-year period from 1949 to 1978, higher education in China was forced to undergo dramatic changes along a tortuous and circuitous path of development. The period included the takeover from the previous authority, adoption nationwide of the Soviet model in the early 1950s, the Great Leap Forward and the educational revolution from 1958 to 1960, retrenchment, readjustment, reorganization, and consolidation from 1961 to 1963, and steady improvement of the system from 1963 to 1965. Finally, this period also included the unprecedented destruction and serious shrinking in size of the higher education system during the so-called Cultural Revolution from 1966 to 1976 and gradual recovery from 1976 to 1978. It is very important to note, however, that the overall operational framework of Chinese higher education as of 1979 was still characterized by the central planning model that was adopted from the Soviets in the early 1950s. This is the key to understanding the contemporary realities of the reform process that started in the early 1980s.

Current Realities: Economic Transition and Higher Education Reform

From the 1980s up to the beginning of the 21st century, Chinese higher education has been characterized by a series of reforms. The economic transition, the fast-growing market economy, the rapid development of science and technology, and the increase in individual income levels and living standards stimulated increasing demands for higher education. Education was considered

the strategic foundation for economic success given the growing recognition of the need for well-educated manpower, especially high-level specialized personnel. Priority was given to university development, and the Chinese higher education system has expanded very quickly over the past 20 years. The total enrollments at higher education institutions in China rose from about 1 million in the early 1980s to about 13 million in 2001. Obviously, the structure of the old higher education system based on a centrally planned economy could no longer fit in with the new reality. Dramatic changes took place in the higher education sector.

The economic transition in China that began in the 1980s coincided with rapid advancements in science and technology, especially the revolution in information and communications technology, that have led the world into a new age of the knowledge-based economy. As knowledge-based institutions, universities have been called on to play a central role in economic development. Furthermore, the knowledge-based economy is international by nature. Capital, production, management, market, labor, information, and technology are organized across national boundaries, which has resulted in a strong tendency toward globalization. China's entry into the World Trade Organization is a part of this process. Cross-cultural interactions, exchanges of students and faculty members, joint teaching and research programs, academic communications, especially over Internet, have formed an ongoing and irreversible internationalizing trend in higher education, providing further impetus from the outside world toward Chinese higher education reform.

Structural Reforms

While policies for economic transition and openness were being implemented, the structure of Chinese higher education in the early 1980s was basically unchanged from the one that took shape in the context of the centrally planned economy of the 1950s. It was in the context of central planning that the governance and administrative system of Chinese higher education originated and evolved. The central government instituted the national socioeconomic development plan and corresponding manpower plan, according to which the State Planning Commission and the Ministry of Education jointly formulated a higher education development plan that included the number and types of institutions and students needed, student quotas for each sector and each province, the distribution of student enrollments by field of study, and institutional enrollment quotas by discipline and specialty. According to the specific manpower requirements, higher education institutions devised their curricula. Students were usually trained in very narrow specializations. Graduate job assignment plans were designed by the government according to the manpower plan of each central-line ministry and province. The system was highly centralized, and universities, attached to governmental agencies, were simply part of the state-planned system. This centrally planned system continued to function all the way to the mid-1990s. In 1995, among the 358 national-level universities and colleges, 35 belonged to the Ministry of Education (State Education

Commission, 1996), and all the other 323 universities and colleges were under the jurisdiction of 61 central-line ministries—such as the Ministry of the Electronics Industry, the Ministry of the Metallurgical Industry, and the Ministry of Agriculture. The higher education system was compartmentalized and segmented in structure. Obviously, such a higher education system based on central planning could not fit in well with the new market economy.

As the economic sector took the lead in initiating reforms, dramatic changes have taken place in the human resources sector, which is closely related to higher education. In the newly developed market economy in China, it is market supply and demand rather than government planning that plays the basic role in resource allocation and utilization. The labor market plays the key role in determining human resources development and allocation. In such a system, higher education institutions need to gear their programs to meet the human resources needs of the labor market. This does not mean that all teaching and research should be shaped only by market forces, but it does mean that the human resources requirements for socioeconomic development, as signaled by the labor market, will be of primary importance to universities. The Chinese higher education system, which used to be part of the centrally planned economy, must be reformed.

The labor market now influences wage structure of graduates by level and type of education, and thus the expected benefits of higher education as well as the demand for higher education opportunities. In terms of labor market

performance, the relative competitive advantage of the graduates with certain types and levels of education will serve as feedback to the universities. For example, if graduates in a given field are in oversupply, their competitive advantage in the labor market will be reduced. Student demands for this field will decline, and universities will adjust their programs and enrollment policies accordingly. This is exactly what is happening in China today. However, the market is not omnipotent—nor is it a panacea—and market failure also occurs from time to time. Thus, the state still has a very important role to play in this market-oriented environment.

The government uses a number of channels to influence, supervise, and coordinate the higher education system. Government actions range from setting the country's macroeconomic policies that will help to determine labor market needs and employment and wage policies in the public sector defining national priorities and funding relevant educational programs, developing an accreditation and quality control system for higher education institutions, and establishing a legal infrastructure for both protecting and regulating the operation of colleges and universities.

The process of institutionalizing the new framework of higher education involves changes in governance and administration, the government/university relationship, the legal status of higher education institutions, university autonomy, and the focus on socioeconomic development and labor market demands. Much has been accomplished with regard to these reforms in recent years, and the new

framework of higher education is now gradually replacing the old one.

As mentioned earlier, the national-level universities and colleges were under the jurisdiction of the 62 different ministries (State Education Commission, 1996), while the provincial universities and colleges belonged to the corresponding provincial line departments. However, with the development of a market economy, after graduating from a university belonging to a specific line ministry, a student might well find a job in a completely unrelated field through labor market mechanisms. As more and more graduates found their own jobs in the labor market instead of through job assignments handled by the ministry, the manpower plan of the central-line ministries failed. The recent reforms have focused on restructuring the Chinese higher education system through mergers of universities or collaborative arrangements among higher education institutions that breach the existing boundaries between the different ministries. Between 2000 and 2003, hundreds of universities and colleges were reorganized. For example, Beijing Medical University under the Ministry of Public Health merged with Peking University, which is under the Ministry of Education. Interestingly, up until the early 1950s, Beijing Medical University used to be the medical school of Peking University. The medical university was separated from the comprehensive university and brought under the jurisdiction of the Ministry of Public Health in the 1950s when the Soviet higher education model was adopted. Similarly, in Hangzhou City, Zhejiang Province, Hangzhou University, Zhejiang Agriculture University, and Zhejiang Medical University, under different jurisdictions, were

merged into Zhejiang University, which is under the Ministry of Education. Hangzhou University used to be the School of Sciences and Arts of Zhejiang University, Zhenjiang Medical University used to be the medical school of Zhejiang University, and Zhejiang Agricultural University used to be the agricultural school of Zhejiang University. These entities were all separated from Zhejiang University and brought under the jurisdiction of different ministries and departments in the 1950s, under Soviet influence. Thus, in some cases, the current structural changes are, to a certain extent, a restoration of the university structure that existed before the Soviet model was adopted. From 1993 to 2001, 708 universities and colleges were reorganized into 302 institutions through the elimination of the line ministries' control over higher education institutions in China. The structure of the Chinese higher education system was changed dramatically.

Reforming the Curriculum

Changing the modes of teaching and learning is at the core of the reforms. Policies concerning curriculum and instruction evolved since the 1960s following the rationale of the centrally planned economy. This was a system in which students were enrolled, trained, and positioned as products of the centrally planned economy. Higher education was characterized by overspecialization. In the mid-1980s, before the period of reform, higher education in China was divided into more than 1,400 narrow specialties. For example, instead of a general

program in mechanical engineering, there were specialties in light industry machinery, heavy industry machinery, chemical industry machinery, public works machinery, petroleum industry machinery, metallurgical industry machinery, agricultural machinery, mining machinery, and so on. Students were usually locked into narrow specializations, with little autonomy in deciding what to learn in school and what to do after graduation, which left them without much flexibility in responding technologically and economically induced changes. Even in the period of a centrally planned economy this overspecialization resulted in a wastage of skills and expertise. For example, a survey of 100,000 college graduates in the late 1980s showed that more than 40 percent of them held jobs unrelated to their professional training (Guizhou Institute of Educational Research, 1988).

With the transition to a dynamic market economy under way, the rapidly changing labor market needs and advancements in science and technology stimulated a call for a more competitive, and adaptive labor force. Therefore, it is imperative for China to implement reforms to broaden the specializations of students to increase their flexibility on the labor market. The reforms have emphasized expanding the knowledge base by changing the curriculum. Since the mid-1980s, specialties have been broadened: for example, the overspecialized machinery programs have been folded into a more general mechanical engineering program. Interdisciplinary studies have been encouraged to provide students in the humanities and social sciences with basic knowledge in science, mathematics, and informatics. Likewise, students in science and engineering

would acquire basic knowledge in the humanities and social sciences to help them understand how best to put what they learn at school in the service of the development needs of the country. The total number of specialties was reduced from more than 1,400 in the mid-1980s to about 200 in 2003. Further reforms in this direction are still under way. For example, at Peking University in Beijing, experimental classes have been created under the special "Yuanpei programs," in which students are enrolled not in academic departments such as physics, chemistry, or mathematics but rather in the general arts and sciences programs, with a much broader curriculum. After two years of studies in general education programs, students gradually become more focused on specific academic fields. This is a reversal of the overspecialization of the Soviet model.

Curriculum reforms were coupled with reforms in the teaching and learning process. The shift in emphasis went from the memorization of factual knowledge to the cultivation of students' ability in creative and critical thinking, problem solving, information acquisition and generation, and intellectual independence. The economic transition and the knowledge revolution dramatically changed the way of teaching and learning. Reforms in teaching and learning have not only encouraged students to acquire the existing knowledge, they are also encouraged to develop the ability to explore and anticipate what will happen in the future. Thus more heuristic and participatory methods of teaching were adopted. The current trend in Chinese higher education is that young people should not be trained for short-term jobs but helped to develop the ability to cope

with new challenges throughout their lives. Universities should not only educate the younger generation intellectually, but also tend to their moral, physical, and aesthetic development. Graduates should not be viewed simply as products but rather as well-educated members of future generations. These changes represent the mainstream of the current curriculum and instruction reforms in Chinese higher education. However, it should be pointed out that these reforms are unevenly implemented among different universities and colleges. In the leading national universities, new curricula and teaching and learning approaches were adopted more quickly because of their strong and more qualified faculty and better facilities, while in some of the local colleges in remote areas, reforms proceeded slowly because of inadequate human, physical, and financial resources.

Higher Education Finance

Stimulated by the soaring societal and individual demand for higher education, Chinese higher education enrollments expanded rapidly over the past 20 years. However, the increase in state appropriations for higher education could not keep up with the growing costs, leading to serious financial constraints for universities and colleges. Although the cost of salaries and fringe benefits accounted for an increasing share of the total budget, faculty income was still relatively low in the 1980s and 1990s. There also was a shortage of nonsalary funding for the teaching and learning infrastructure, which resulted in understocked laboratories and libraries. Many universities lacked the necessary

equipment and funds for upgrading obsolete facilities (Min, 1990). Obviously, without successfully tackling the financial constraints, Chinese higher education system could not sustain a healthy development and upgrade its quality to meet international standards. Thus systematic reforms in financing higher education were implemented.

An effort was made to change the structure of government spending to benefit education. Despite the increase in state appropriations to higher education since the early 1980s, public expenditure on education in China remains relatively low by international standards. In the late 1990s, China was spending less than 3.5 percent of its GDP on education, as compared with an average of 6 percent in developed countries and 4 percent in other developing countries. A decision was made by the central government to increase appropriation to education at all governmental levels at a rate higher than the rate of increase of revenues. Allocations per student and teacher salaries were increased for direct teaching and learning purposes. The central government decided to increase allocations to education by one percent over the previous year continuously for five years between 1999 and 2003. Thus in 2003, the central government's budgetary allocation for education had increased by 5 percent. In the higher education sector, total government spending increased from 54.5 billion RMB yuan (U.S.$6.7 billion) in 1998 to 111.4 billion (U.S.$13.6 billion) in 2001, doubling in three years. Similarly, average teacher salaries increased impressively.

Developing a cost-sharing and cost-recovery system represents another

major reform in the financing of higher education. Under the centrally planned economy, the Chinese higher education system did not charge students any tuition. It also provided students with free dormitory housing and stipends for food and other expenses, which amounted to about 20 percent of total recurrent costs. Chinese universities started to charge tuition and fees as one of the strategies to address their financial difficulties, gradually institutionalizing the concept that the costs of higher education should be paid in part by those who benefit from higher education. At the same time, student loan and scholarship programs have been set up for students from needy families to address the equity issue. This policy became both necessary and feasible because of dramatic changes in national income distribution stemming from the transition in the economy. Along with the increasing willingness and capacity to pay on the part of students and their families, tuition levels gradually rose. At present, more than one-fifth of the total operational budgets of Chinese higher education institutions is covered by tuition and fees. In 2000, of the Chinese higher education system's 98.3 billion Chinese RMB yuan (U.S.$12 billion) in total recurrent expenses, 21.7 billion (U.S.$2.64 billion) came from tuition and fees paid by students.

One of the significant changes in financing higher education in China since the mid-1980s has been to allow universities to make use of their human capital resources and capacities in science and technology to generate revenue for themselves. This is one of the promising strategies for increasing the resources devoted to higher education. The revenue generated by universities themselves

has increased remarkably since 1985, when higher education institutions were given the autonomy to do so. Universities generated funds through research contracts with industry, technical consulting work with businesses, training and educational services, and fund-raising activities. Many universities established foundations and development offices to seek contributions from alumni, other individuals, and businesses. Some universities, such as Peking University and Tsinghua University, even set up foundations as charitable corporations in the United States.

Chinese universities also generated revenues by incubating spin-off companies. For example, Peking University is home to the largest university-affiliated high-tech company in China—the Founder Corporation—which markets its innovations in computer-laser technology in the business of newspaper typesetting and publishing. In 2002, the company had a business volume of 14.5 billion Chinese RMB yuan (U.S.$1.8 billion). Although it was established outside the university structure as an independent legal entity, the Founder Corporation supported the university, providing research funding for the advancement of computer-laser technology and submitting a certain proportion of its net profit as royalties to the university. In recent years, 15 percent of Peking University's operational budget was supplied by its affiliated companies. Chinese universities also secure more and more of their research funding from the proceeds of their business ventures—increasing from RMB 1.4 billion yuan in 1990 to RMB 17.3 billion yuan in 2001. In the year 2000, of the 98.3 billion Chinese RMB yuan

(U.S.$12 billion) in total recurrent expenditures of the Chinese higher education system, 57 percent came from state appropriations, 22 percent from tuition and fees, and the remaining 21 percent from revenue generated by the universities themselves. At present in China, some universities, such as Peking University and Tsinghua University, generate more than 50 percent of their total revenues.

Universities are also being encouraged to improve institutional management and thereby turn a relatively high-cost system into a more cost-effective one. This change was achieved by the internal reorganization of universities—rearranging small departments, broadening specialties, eliminating duplication in programs—to make more effective use of staff and physical resources. The student-teacher ratio was increased from 3:1 in 1983 to 16:1 in 2001. Arrangements were made for institutions or departments to share expensive equipment, faculty, and other resources. One cost-saving approach was to achieve economies of scale by consolidating small institutions into larger ones as well as by breaking down some departmental boundaries, as mentioned earlier (Min, 1991). The average enrollment at Chinese universities and colleges increased from less than 2,000 in 1990 to over 4,000 in 2001.

Promotion of the Private Sector

Although public higher education has expanded very quickly, the unmet demand for higher education in China is still very large. Enrollments at higher education institutions in China comprised less than 3 percent of college age cohort

in the early 1980s but that figure had risen to 14 percent by 2002. However, the demand for higher education is rising much faster than the rate of higher education expansion. Constrained by the limited resources available for higher education development, the Chinese government implemented policies to promote private institutions. In August 1993, an important document, the Provisional Stipulations for the Establishment of *Minban* Higher Education Institutions, was issued. *Minban* (non-state-run) universities and colleges are actually private institutions, as defined internationally.

The goal of this policy is to mobilize more resources from the private sector to accelerate higher education development. Since the early 1990s, local private institutions have mushroomed, financed by tuition fees, donations, and income generated by training programs, consultation, and technical services. Initially, Chinese private universities and colleges were usually small in size with flexible curricula. Their generally short-cycle vocational programs, served as important complements to the public higher education system. However, the private institutions quickly grew and matured, some becoming very large and competitive. For example, Xi'an International University—a private comprehensive university established in 1992 in Xi'an City, Shaanxi Province—now has 10 colleges and 21,000 students, modern teaching facilities that include a satellite digital transmission system, a multimedia computer network, a campus on-line network, a computer center, an audiovisual teaching center, and a considerable number of laboratories. Xi'an International even established

international links with universities in the United States, the United Kingdom, Australia, and Canada. Currently, private universities and colleges number 1,202, and enroll 1.13 million students. It is important to note that when China adopted a Soviet-based centrally planned economy in the early 1950s, all private universities and colleges were converted into public institutions. During the transition from a centrally planned to a dynamic market economy, private institutions reemerged and have contributed significantly to the human resource development of the country.

Currently, there are over 1,000 private universities and colleges, most with only two- or three-year study programs. To a certain extent, they are the equivalent of community colleges or trade schools in the United States. At present, only about 5 percent of these institutions have been officially accredited by the National Committee for the Establishment of Higher Education Institutions, and their diplomas are recognized by the Ministry of Education. In December 2002 the 31st session of the Standing Committee of the Ninth People's Congress adopted a new law to promote private education in China. This law gives private schools and universities the same legal status as public institutions and guarantees their autonomy. It also stipulates the evaluation procedures and legal guidelines that private institutions must follow. The legislation represents the official recognition that private universities serve the public interests. Private universities and colleges will be expected to grow more quickly, account for an ever larger proportion of higher education enrollments, and play an increasingly significant

role in Chinese higher education.

World-Class Universities

The economic transition has been accompanied by dramatic technological changes. The rapid advancements in science and technology, the knowledge explosion, and the revolution in information technology have transformed the international economy. A country's capacity to generate, accumulate, deploy, and utilize knowledge and information becomes crucial for development. As knowledge-based institutions, universities play a critical role in a country's economic growth and social development. Universities are involved in knowledge generation, processing, dissemination, and application through their teaching, research, and service to industries and communities. Thus, if knowledge is the fuel of the new world economy, universities are one of the engines driving economic development in the 21st century (Castells, 1991). The Chinese government has, therefore, formulated policies not only to expand the higher education system but also to upgrade the quality of the leading national universities to world-class status. Increased funding was allocated to selected universities, such as Peking University and Tsinghua University. Special funding was also allocated to some other national universities to help them to upgrade and strengthen specific disciplines and academic programs. The rationale was that limited resources should not be thinly spread out but rather concentrated on some priority institutions or academic programs in selected universities.

As knowledge generators, world-class universities are usually also the leading research institutions. For this reason, the research function has been reemphasized in Chinese universities. In the early 1950s, when the Soviet model was adopted, research was separated from the universities, and the Chinese Academy of Sciences was established to conduct research. Since the 1980s, there has been a growing recognition of the importance of combining teaching and research at universities, especially at the leading national universities with postgraduate programs. Universities were required to be both centers of teaching and centers of research. Integrating teaching and research is considered as a major strategy to update curricula and improve instructional quality, as well as enhance research. At universities, both research and publication in international scholarly journals are being promoted as part of the effort to achieve world-class status.

World-class universities also need to establish worldwide contacts. China's implementation of policies of reform and opening up were based on the principle that no country can develop and prosper if it isolates itself from the rest of the world—especially in the information age. For Chinese universities to achieve world-class status, they need to be integrated into the international academic community. As reforms integrated China into the global economic system, Chinese universities also become more internationalized. Approximately 450,000 students and scholars have gone to study abroad in the past 20 years, more and more international academic exchange programs and joint research programs have been set up, and numerous international education conferences and

workshops are held each year in China. With the introduction of information technology, especially computer networks—i.e., CERNET (China Education and Research Network), which is interconnected with the INTERNET—the pace of international communication and collaboration in higher education has been accelerated. Internationally oriented programs account for an increasing proportion of the curriculum. These programs—such as, international studies, foreign languages, international relations, international economics, international business, international politics, history, and international law—have become very popular at Chinese universities. At the same time, more and more international students are coming to study in China.

To create world-class universities has been the ideal and goal of several generations of Chinese educators over the past 100 years. When Cai Yuanpei was appointed as the president of Peking University in 1917 he certainly had such a vision in mind. In the current period of higher education reform and development, Chinese educational leaders in both the government and the universities have tried to realize this goal. However, being pragmatic in approach, they are aware that the limited resources mean the system can only afford to lift a small number of universities to world-class status in the near future. Thus, the Chinese Ministry of Education has made it clear that China will initially seek to promote fewer than 10 universities in their struggle to reach world-class status, with top priority going to Peking University and Tsinghua University. It is expected that these leading Chinese universities will be able to serve as locomotives to help raise the

standards of the higher education system as a whole in China.

Enhancing Faculty Development

Faculty are key to reforming the curriculum and the teaching and learning process, as well as to upgrading Chinese universities to world-class status. Great efforts were thus made to strengthen the faculty. Of the 1.45 million employees in Chinese higher education, about 554,000 are faculty members. In general, the academic profession is well respected in traditional Chinese culture. However, the prestige of university teachers was destroyed in the mid-1960s during the so-called Cultural Revolution.

From the 1970s to the 1990s, the incomes of faculty members were also relatively low, while basic salaries of university faculty were comparable to those of other professionals with similar educational qualifications, faculty remuneration was lower because of larger bonuses given to employees in companies, especially in joint venture firms. The government and universities have sought to raise faculty prestige and income with additional state appropriations and revenue generated by the universities themselves. From 1998 to 2001, the average annual income of university teachers in China doubled, going from 12,000 RMB yuan (U.S.$1,500) to 24,000 RMB yuan (U.S.$3,000)—an increase that raised faculty salaries above the average income levels in the country. The government also spent 114.4 billion RMB yuan (U.S.$14.3 billion) to improve teachers' living conditions. Fifteen billion square feet of new faculty housing was

built between 1994 and 2001 (Li, 2002). At present, the morale of university teachers is quite high in China, and the academic profession has become quite an attractive occupation for young scholars.

Currently, the Chinese higher education system is composed of full professors, (9.5 percent), associate professors (30.3 percent), lecturers, which is equivalent to assistant professors in the US, (35.2 percent), assistant teachers, which is lower than lecturers (19.1 percent), and instructors (6 percent). At some of the leading national research-oriented universities, senior faculty members account for a much larger proportion of the total. For example, at Peking University, senior faculty members including both professors and associate professors account for more than 70 percent of the total faculty. Among faculty members, 46.4 percent are below the age of 35 years, showing the effect of recent heavy recruitment of faculty due to the rapid expansion of higher education. About 39.8 percent of faculty members are between 36 and 50 years of age and about 11.4 percent between at 51 and 60. This latter age group is also relatively small, showing the generational gap of quality faculty that occurred as a result of the destruction of higher education during the Cultural Revolution. Because the retirement age for lecturers and associate professors is about 60 and for full professors about 63, only 2.2 percent of faculty are beyond age 61. Female faculty account for an increasing proportion of faculty in China, increasing from 10 percent in 1950 to almost 40 percent in 2001 (Ministry of Education, 2002).

Traditionally, faculty members were trained mainly at domestic higher

education institutions, especially at national universities with graduate programs. Since China did not have an academic degree system until the 1980s, only about 30 percent of all faculty members hold postgraduate degrees. Along with the implementation of reforms and open-door policies, many internationally trained scholars with advanced degrees joined the university teaching force, which improved the quality of faculty and enhanced the international links with the world academic community. As part of the current higher education reform, more faculty members have been sent abroad for advanced studies. Chinese university faculty have increased their international links through academic exchange programs, international conferences, study tours, and joint research projects with foreign colleagues and international academic and professional organizations. These activities play an important role in improving Chinese scholarship and in enabling Chinese scholars to contribute to academic development internationally.

Future Trends and Challenges

Chinese universities have undergone very rapid expansion and dramatic changes. Enrollments have increased rapidly. In 1998, about 1.08 million new students were admitted to universities and colleges, while in the year 2002 the new intakes of students had increased to 3.49 million. It is anticipated that by 2005 total enrollments will reach 15 million and that the enrollment rate will exceed 15 percent of the college age cohort (Chen, 2002a). According to demographic projections, the college-age population will continue to grow quickly, reaching its

peak in 2008. As a result, higher education will continue to face great pressure to expand, driven by the fast-growing economy, the rapid rise in family income and living standards, and the huge unmet demand from the 85 percent of the college-age young people who currently are not enrolled in higher education institutions. This ongoing trend will lead to a series of challenges for the Chinese higher education system.

Maintaining and Improving Quality

The quality of higher education is always a major issue almost everywhere in the world, and Chinese higher education is no exception. Some of the leading national research universities that did not overexpand enrollments paid sufficient attention to improving quality while marching toward world-class status. Thus their quality level in both teaching and research was raised. However, the quality of many local universities and colleges was negatively affected by the rapid expansion of enrollments and overcrowding. The rapid expansion of the system has made it difficult to sustain quality inputs such as the number of qualified faculty and staff, curriculum development and program upgrading, laboratory facilities, and library books. If these issues are not addressed properly, the quality of Chinese universities could deteriorate. It is imperative for China to enhance supervision and quality assurance of higher education institutions, especially with regard to the accreditation and regulation of the newly mushrooming private universities and colleges. Since faculty quality is the key to quality education,

serious measures need to be taken to improve and enhance faculty development. During the rapid expansion, large numbers of teachers were recruited and promoted. Some of them are short on academic qualifications and teaching experience, and some of the older generation of teachers were held back by social changes and unable to keep up with the rapid advances in science and technology. Thus, one of the challenges for Chinese universities is to develop in-service training programs to allow faculty members to improve their teaching skills and update their knowledge. Another task is to set stricter academic standards for faculty appointments and promotions and to attract capable young academics to join the university teaching force. A project entitled "Enhancing Higher Education Quality" is to be initiated by the Ministry of Education as part of a major effort to tackle quality problems in Chinese higher education.

Since China is a large country with a huge higher education system consisting of more than 3,000 institutions, quality levels vary across institutions. The Chinese government has adopted various policies that gave priority support to certain key national universities. For example, the "211 Higher Education Project" initiated in 1995 gave additional special funding to 100 selected universities. The "985 World-Class University Project," which was initiated in May 1998 during the centennial celebration of Peking University, gave more concentrated support to a smaller number of national universities to upgrade their academic levels to world-class status. As a result, higher education institutions in the future will be more differentiated, with a few national research universities at

the top. The leading national universities should function as national "centers of excellence." They are expected to serve the engines that drive the whole Chinese higher education system to a higher level. It will be a challenge for these key institutions to upgrade themselves and at the same time help to improve the quality of local institutions.

Regional Disparities

The Chinese economy has grown rapidly over the past 20 years, but the rate has varied greatly among different provinces across the country. For example, in 1980 the per capita GDP in Shanghai was 2,738 RMB yuan, while in Guizhou it was only 219 RMB yuan. By 2001, Shanghai's per capita GDP had risen to 37,382 RMB yuan (U.S.$4,600) and was 12 times higher than that of Guizhou.

The increasing regional economic disparities were accompanied by regional disparities in higher education. For example, in 2001, for every 10,000 people in the population 169 were registered higher education students in Beijing; 112, in Shanghai; and 12 and 17, Guizhou and Qinghai, respectively. The unmet demand for higher education in the underdeveloped provinces was huge. For example, in 2000, only about one-fourth of the young people who applied to higher education institutions and took the entrance examinations were admitted in some of the poorer provinces. Not only was the difference in quantity very large, the difference in quality was even more significant. All the top-ranking national universities—such as Peking University, Tsinghua University, Fudan

University, Shanghai Jiaotong University, Nanjing University, and Zhejiang University—are located in the economically more developed provinces and municipalities, while in the less-developed provinces of Guizhou, Qinghai, Xinjiang, Henan, and Shanxi, for example, have no key national universities. The uneven development and growing regional disparities in higher education have become critical issues and attracted the attention of the national leadership. One of the policies instituted gave high priority to developing the western part of the country. Each of the leading national universities in the more developed areas was required to twin with a university in a less-developed province and to provide substantial support to the provincial university. The assistance included helping them with respect to increased enrollment capacity, curriculum development, donation of equipment, and faculty development. To improve university management the national universities sent capable administrators and teachers to the twinned campuses and brought teachers and administrators from the provinces back to the universities in the developed areas for further training and upgrading. For example, Peking University sent an excellent administrator to its twinned university, the Xinjiang Shihezi University, to serve as vice president, as well as providing teachers and equipment. These university-twinning programs have been in existence for two years and have been very effective in reducing the regional disparity in higher education. However, given the very nature of the decentralized market economy, the uneven growth in GDP among different provinces, and the corresponding decentralized financial system—which was

called "each province cooks its dinner on its own stove"—regional disparities will remain as one of the major challenges facing China.

Changing Patterns of Access

In China, the distribution of higher education opportunities and public investment in higher education in used to be very unequal among different social groups. These inequities have lessened with the economic reforms and development and the expansion of higher education enrollments. For example, according to the 1991 City and Township Household Survey, college-age young people from the poorest 20 percent of households accounted for only 2.3 percent of higher education enrollments in China, while those from the richest 20 percent of households accounted for 55.6 percent of higher education enrollments. The enrollment rate for the highest-income families was 24 times higher than that of the lowest-income families. During the 1990s, access patterns changed for the better. In 2000, college-age young people from the poorest 20 percent of households accounted for 9.5 percent of total higher education enrollments in China, a significant increase from 10 years earlier. Students from the richest 20 percent of households accounted for 30.1 percent of higher education enrollments, a 25.8 percent reduction since 1991 (Ding, 2003). In 2001, female students accounted for 42 percent of total enrollments, a higher percentage than before.

The improved access is one result of the expansion of higher education, as well as the introduction of financial aid programs for students from low-income

families. For example, in 2002, the Ministry of Education and the Ministry of Finance initiated a new national scholarship program with an annual allocation of 200 million RMB yuan (U.S.$25 million) that provides outstanding students from low-income families with stipends for living expenses. The program also stipulates that scholarship recipients should receive tuition exemptions from their universities.

It should be noted that although access to higher education has improved to a certain extent, it remains a serious challenge for China. In the year 2000, the enrollment rate for the 20 percent of highest-income families was still three times higher than that for the lowest-income families. Furthermore, since the higher education system is becoming increasingly differentiated, more college-age young people from higher-income families are likely to attend the leading national universities than those from lower-income families, which creates equity issues within the system. This is another kind of access issue that China will need to tackle in the near future.

The Employment of Graduates

Before the 1980s, university and college graduates in China were treated like products of the centrally planned economy. They were assigned jobs upon graduation by the government, which determined where they should go and what they should do, in a top-down process. With the economic transition, the occupational prospects of graduates were shaped by the labor market. With the

government no longer responsible for job assignments, graduates have to find jobs on their own. To do so, they must respond to the needs of a rapidly changing labor market. The rapid expansion of the higher education system meant that more than three million university students graduate each year—more than the labor market can absorb at once. Recently, it has become difficult for some students to find jobs upon graduation, especially those from local colleges and from over-specialized colleges—some of which are holdovers from the centrally planned economy. Unemployment will become a more serious issue in years to come as more and more young people graduate from universities. The issue is mainly structural in origin. Among current higher education institutions, quite a large proportion still have highly specialized curricula. The students are locked into very specialized fields, which makes them less flexible and adaptive to technologically induced changes in the workplace and to labor market needs in a rapidly changing economy. The result is often a mismatch between narrowly trained graduates and the manpower needs of the labor market. University graduates prefer to seek employment in large cities or the coastal regions, even though the job market is relatively tight, avoiding the remote areas in the interior that have a serious shortage of university graduates. To tackle the issue of unemployed graduates will require broadening fields of study, thereby increasing students' flexibility and adaptability. Universities will also need to establish closer links with industries and other sectors of society, as well as developing better communication and interaction between students and potential employers. More

autonomy should be given to higher education institutions to adjust their enrollment patterns so as to reduce the mismatch between the supply and demand of university graduates.

Consolidating the Reforms

Chinese universities have just undergone a dramatic reform process. It was recognized that restructuring higher education would require eliminating excessive government control over institutions and granting universities more autonomy in the management of programs and resources (Communist Party, 1985). The ongoing challenge will be to deepen the reforms and consolidate and institutionalize the implemented changes. Extending greater autonomy and decision-making power to universities and colleges will make them more innovative, creative, and responsive in the development process. Another crucial strategy is to continue to multiply and diversify the sources for financing higher education. The structure of higher education needs to be differentiated by levels and fields of learning so that the system is better able to meet the country's social and economic needs. Another area requiring comprehensive reform concerns the faculty—in the area of appointments, promotions, professional development, and the introduction of more effective incentive mechanisms. The establishment and development of private universities should continue to be encouraged, and more effectively monitored, to expand the provision of higher education. Finally, it is imperative to construct and enact a legal infrastructure to better protect and

regulate universities and colleges, while increasing institutional autonomy.

Facing the Challenge of the WTO

China's entry into the World Trade Organization (WTO) will definitely have a strong impact on both the economy and the higher education system, bringing both opportunities and challenges. With the further opening up of the economy, the country will become more integrated into the global marketplace and face increased competition. Thus, Chinese universities need to produce a more qualified labor force in order to enhance the country's economic competitiveness.

Chinese universities themselves will also be facing increased competition. In keeping with the educational commitments China made to the WTO, no restrictions will be placed on foreign countries' recruitment of Chinese students to study abroad, and foreign universities will be allowed to operate in China with Chinese partners. There will be more students and teachers flowing across national borders (Chen, 2002b). As a result, more high-quality Chinese students and teachers might be attracted to foreign countries or to foreign universities operating in China. It should also be noted that with the entry of more foreign companies into China, more high-level Chinese professionals may decide to leave the academic profession for higher-paying positions in corporations. Western thinking patterns, values, and belief systems will accompany international trade and investment, resulting in new challenges for traditional Chinese values in

education. China's entry into the WTO will further strengthen the trend toward internationalization in Chinese higher education. How to become an integral part of the international higher education community and at the same time keep their own cultural identity will also be a challenge for Chinese universities in the years to come.

In summary, the current reforms and future trends within Chinese higher education are the logical and inexorable consequences of the past. Just as the future will be shaped by current reforms and developments, the reforms since the late 1970s were the inevitable and logical responses to the failure of the centrally planned system adopted from the Soviet Union in the 1950s. The adoption of the Soviet model grew out of the international social, economic, and political context surrounding the founding of the People's Republic. It also should be understood that the Soviet model of higher education was implanted in China on a foundation built on several thousand years of Chinese cultural and educational tradition and more than a hundred years of Western higher education influence.

Recognizing the dysfunctional nature of the Soviet system and the changing international environment, in the early 1980s China made the historic choice to implement new reform policies and to open up to the outside world. The reforms have lasted for more than 20 years, leading China into the 21st century with the new characteristics and challenges discussed in this chapter. Some of these reforms and reorganizations are simply a restoration of the Western-influenced university model that predated the introduction of the Soviet system—

such as the merger of Beijing Medical University back into Peking University and the consolidation of four universities into the new Zhejiang University. Some of the reforms are innovations generated by the demands of the current domestic and international context. It takes a very dynamic perspective to understand current developments in Chinese higher education and the system's historical roots.

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