



Understanding Korean Educational Policy

**UNIVERSALIZATION OF
TERTIARY EDUCATION**

Understanding Korean Educational Policy Vol. 2

Universalization of Tertiary Education

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Preface to the Series

Korea has been developed from one of the poorest and least developed countries after the Korean war to emerge as a developed country due principally to achievement of industrialization and democratization. In addition, Korea successfully joined the OECD which is called “developed countries’ club”, in 1996 and it now aims to join the OECD/DAC by 2010. As the world’s 13th largest nation on economy and a member of the OECD, Korea needs to play its role as a donor country and share Korea’s development experience with developing countries.

As aforementioned, Korea built on its unique historical experience of overcoming poverty and attaining rapid economic growth. Also, Korea is the only country that has moved from being an aid recipient to becoming an aid donor. Hence, many development organizations and developing countries have showed their interests in learning Korea’s unique development experience.

The KEDI has conducted very meaningful research on “Korea’s role of knowledge sharing for international education development” for 3 years since 2006. According to domestic and international researchers, economic growth and social development of Korea can be attributed to high participation in education and government’s strong policy interventions to mobilize human resources. This research includes three topics; Korea’s “National Development Strategy and Education Policy,” “Universalization of

Tertiary Education,” and “Efficient Management of Educational Finance.” The “National Development Strategy and Education Policy” presents the Korean government’s education policy and its broad impacts on national development in the historical context. The “Universalization of Tertiary Education” analyzes the expansion of tertiary education and qualitative improvement with structural changes in half a century. The “Efficient Management of Educational Finance” illustrates efficient mobilization of education finance as the basic financial resources to implement educational policies.

This is a part of the volume to introduce educational development experience of Korea. I hope developing countries can be benefited from this book. I expect the research outcomes to be widely used to provide basic data and information and eventually to contribute toward educational development in developing countries.

December 27, 2008

A handwritten signature in black ink, appearing to read 'D. S. Jin', written in a cursive style.

Dong-Seop Jin, Ph.D.
President,
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1

Growth and
Results of
Korean Tertiary
Education

During a short period of sixty years after liberation, Korean tertiary education system has experienced rapid growth and is now universalized, with Korea's ratio of students in higher education being one of the highest in the world.¹⁾ As tertiary education opportunities have expanded, efforts have also been made to improve the quality of education at this level. The universalization of Korea's education system occurred in a short period of time in a resource-lacking, undeveloped country, and therefore can be used as an encouraging success case for developing countries.

With this objective, this paper will examine the growth and results of Korean tertiary education system since 1945. The growth of Korean tertiary education in terms of educational institutions, conditions, and output of educational institutions is examined mainly using quantitative indicators, and the characteristics of each era are described. The results of Korean tertiary education are also analyzed, while the results of international exchanges in Korean tertiary education are examined in light of the importance of cooperation projects in education development.

In the second chapter, the major policies that affected the universalization of Korean tertiary education are surveyed, and we will introduce a successful case for higher education that can be used as a benchmark for developing countries. The major policies analyzed include 1) university establishment and student policy, 2) university admissions policy, 3) university reform policy, 4) university autonomy, 5) structural reform at universities, 6) university specialization, 7) private university policies, and 8) tuition policies. Korea's open tertiary education system, including the credit bank

1) If Martin Trow's stages of tertiary education are applied to Korea, Korea entered the universal stage in 2000 when the tertiary education attendance rate reached 50%. The rate is currently at 70%.

system and Korea National Open University, will be introduced as a success model for tertiary education and expanded education opportunities. In addition, nationwide reform projects to improve the quality of education such as BK 21, NURI, and Industry-Academy Cooperation projects, will be examined.

In the last chapter, tertiary education systems in developing countries and factors hindering their development are studied. A SWOT analysis is conducted on the Korean tertiary education system to find the significance of the universalization of tertiary education and suggestions for developing countries.

1. GROWTH AND RESULTS OF KOREAN TERTIARY EDUCATION

A. OVERVIEWS OF KOREAN TERTIARY EDUCATION²⁾

i. Change in Number of Schools, Students, and Teachers

When Korea gained its independence in 1945, tertiary education was extremely limited due to colonial Japan's policy of restricting educational opportunities. Korea's liberation on August 15, 1945 can be taken as the beginning of tertiary education in the country. With the establishment of the Korean Government in 1948, the colonial university system was completely overhauled and the framework for a modern tertiary education system was established.

After liberation, Korean tertiary education system experienced tremendous growth. Restrictive educational policies under Japanese occupation were replaced by liberal, laissez-faire policies, and rapid quantitative growth occurred as pent-up demand for higher education exploded. The increased demand and government's liberal policies saw a huge increase in tertiary education institutions, and the number of students also skyrocketed.

At liberation there were only 19 institutions of higher learning and only 7,800 students. Sixty years later, in 2007, the number of institutions of higher learning increased to 408, and the number of students at these institutions totaled 3.6 million, a 455-fold increase.

2) This passage was extracted from "Korea's Tertiary Education: Results and Tasks" by Kim Yeong-Cheol (2008), presented at the "Education Community's Discussion on 60 Years of Korean Education: Results and Tasks" held on November 26, 2008 by the Korean Federation of Teachers' Associations, the Korean Educational Research Association, and the Korean Educational Development Institute.

By era, the changes in institutions of higher learning are summarized as follows. The number of institutions rapidly increased in the 1950s and 1960s, then maintained steady growth until 2005 when it started to decrease. This was likely due to the university restructuring and amalgamation efforts in the 2000s.

In terms of student population, the number grew rapidly when university autonomy policies were adopted in the 1950s after the Korean War. When university regulation policies were adopted in the 1960s and 1970s, the number of students did not grow significantly. In the 1980s, the student population grew dramatically due to policies attempting to address the issue of overheated private tutoring, and the number continued to grow in the 1990s when university establishment standards were applied. Since 2005, the number of students remains steady. These trends apply to the total student population in all institutions of higher learning. The number of students in junior colleges has been declining since 2002 because birth rates in recent years have fallen drastically, reducing the number of college-age students.

The number of professors has increased steadily, except for a temporary decrease during the Korean War. The number of professors has usually risen with the student population.

<Table 1> Growth of Tertiary Education

Year	Number of Schools	Number of Students	Number of Professors
1945	19	7,819	1,490
1950	55	11,358	1,100
1955	74	84,996	2,626
1960	80	81,519	4,027
1965	157	142,629	5,351
1970	168	201,436	10,270
1975	205	318,683	13,819
1980	237	647,505	20,662
1985	262	1,451,297	33,483
1990	265	1,691,681	42,911
1995	327	2,343,894	58,977
2000	372	3,363,549	57,632

Year	Number of Schools	Number of Students	Number of Professors
2005	419	3,548,728	66,862
2008	405	3,562,844	73,072

Notes: i. All tertiary education institutions were included in the number of institutions. Since 1970, all institutions of higher learning except graduate schools attached to universities were included.

ii. Branch schools are not included in the number of institutions.

iii. Number of instructors only includes presidents (deans) and full time instructors.

Source: Ministry of Education, Science, and Technology, Korean Educational Development Institute (2008). Educational Statistics Analysis Handbook; Kim Jong-Cheol (1979). Research on Korea's Higher Education. Seoul: Baeyoungsa.

Private schools played a very important role in the growth of Korea's higher education. National and public universities alone could not meet the surge in education demand that occurred after liberation. At this time, farmland reform was underway, and many landowners established private universities to avoid having their land confiscated by the government. This creation of the new schools was actively encouraged by the government. As a result, private institutions now account for a large share of Korean schools.

The proportion of junior colleges that were privately-run increased from 57.0% in 1970 to around 95% in the late 1990s. The share of privately-run universities decreased from 75.4% in 1970 to 71.5% in 1980, but began to increase in the early 80s due to a rising student population, resulting in a 78.7% share in 2007. Thus almost all junior colleges and more than three-quarters of universities are private.

<Table 2> Share of Privately-run Junior Colleges, Universities (by number of students)

Year	Junior Colleges			Universities		
	Total	Private	Ratio(%)	Total	Private	Ratio(%)
1970	33,483	19,100	57.0	146,414	110,376	75.4
1975	62,866	43,868	69.8	208,986	152,156	72.8
1980	165,051	138,170	83.7	402,979	288,293	71.5
1985	242,117	219,161	90.5	931,884	688,506	73.9
1990	323,825	296,866	91.7	1,040,166	785,418	75.5
1995	569,820	548,347	96.2	1,187,735	891,794	75.1
2000	913,273	875,942	95.9	1,665,398	1,293,320	77.7

Year	Junior Colleges			Universities		
	Total	Private	Ratio(%)	Total	Private	Ratio(%)
2005	853,089	816,936	95.8	1,886,639	1,485,971	78.8
2008	771,854	745,152	96.5	1,943,437	1,531,762	78.8

Source: Kang Sung-Kuk et al. (2005). Analysis of Education Indexes for 60 years of Growth in Korean Education. Korean Educational Development Institute; Ministry of Education, Science, and Technology. Korean Educational Development Institute (2008). Annual Education Statistics.

ii. Changes of Educational Conditions

a) Student to Professor Ratio

In the tertiary education sector, the student to professor has not improved significantly, and has even worsened in some respects. In junior colleges, the ratio increased from 20.5 in 1970 to 78.0 in 2000, and then slowly tapered off. In universities, the student-professor ratio increased from 22.2 in 1970 to 46.3 in 1985, decreased until the 1990s, and then increased again in the late 1990s. Since the 2000s, the increase in the student population slowed down somewhat and the student-professor ratio is gradually improving.

<Table 3> Student to Teacher Ratio at Junior Colleges and Universities

Year	Junior Colleges			Universities		
	Students	Professors	Students to Professors	Students	Professors	Students to Professors
1970	33,483	1,637	20.5	146,414	6,591	22.2
1975	62,866	2,748	22.9	208,986	8,575	24.4
1980	165,051	5,488	30.1	402,979	14,458	27.9
1985	242,117	5,369	45.1	931,884	20,128	46.3
1990	323,825	6,139	52.7	1,040,166	25,337	41.0
1995	569,820	8,426	67.6	1,187,735	33,938	35.0
2000	913,273	11,707	78.0	1,665,398	41,943	39.7
2005	853,089	12,027	70.9	1,886,639	49,200	38.3
2008	771,854	12,100	63.8	1,943,437	54,331	35.8

Source: Kang Sung-Kuk et al. (2005). Analysis of Education Indexes for 60 years of Growth in Korean Education. Korean Educational Development Institute; Ministry of Education, Science, and Technology. Korean Educational Development Institute (2008). Annual Education Statistics .

b) Tertiary Education Costs per Student

Education costs for each student have steadily risen due to increasing public education costs for tertiary education institutions. Public tertiary education costs per student rose from 157,000 won in 1970 to more than 1 million won in 1980, 5.59 million won in 2000, and 8.23 million won in 2007. However, the increase in per-student public education costs at the university level is much smaller than the increases at the elementary, middle, and high school levels. For example, before 1980, public education costs for a university student were 13 times higher than those for an elementary school student, but in 2007, they were only twice as high (Ministry of Education, Science, and Technology. Korean Educational Development Institute <2007> Educational Statistics Analysis Handbook). This shows that the government's investment in university education has been meager compared to its investment in elementary education.

<Table 4> Public Tertiary Education Costs per Student

Year	Public Education Costs per Student (thousand won)
1970	157
1975	313
1980	1,036
1985	1,210
1990	1,906
1995	4,227
2000	5,591
2005	7,270
2008	8,152

Note: Public education costs for each student include education costs for national and public universities, parents' associations, and budget for private school costs.

Source: Korean Educational Development Institute, "Korea Education Indicators," 1996; Ministry of Education, Science, and Technology. Korean Educational Development Institute (2008). Educational Statistics Analysis Handbook.

Education costs vary significantly based on the type of institution and the field of study. In 2008, the entrance fee for public junior colleges was 436,000 won, tuition 2,022,000 won, and parents' association fee 2,500,000

won. For private junior colleges, the entrance fee was 1,000,000 won, and the tuition and parents' association fee were 9,976,000 won. To study humanities or social sciences at a public university, an entrance fee of 423,000 won, 2,058,000 in tuition, and 4,482,000 won parents' association fees had to be paid. To study in the same fields at a private university, an entrance fee of 1,092,000 won, and tuition and parents' association fees cost 10,940,000 won. Engineering students had to pay 423,000 won entrance fee, 2,588,000 won in tuition, and 5,602,000 won in parents' association fees at public universities, or 1,092,000 won in entrance fees and 10,210,000 in tuition and parents' association fees at private universities.

<Table 5> Student Tuitions at Tertiary Education Institutions in 2008 (annual amount per student)

		Public			Private		
		Entrance Fee	Tuition	Parents' Association Fees	Entrance Fee	Tuition	Parents' Association Fees
junior colleges	high	436,000	2,022,000	2,500,000	1,000,000	9,976,000	-
	low	98,000	318,000	718,000	300,000	3,580,000	-
Universities	Humanities/Social Sciences (high/low)	423,000 169,000	2,058,000 680,000	4,482,000 2,240,000	1,092,000 150,000	10,940,000 168,000	- -
	Natural Sciences (high/low)	423,000 169,000	2,310,000 696,000	7,002,000 2,264,000	1,201,000 470,000	12,436,000 5,418,000	- -
	Engineering (high/low)	423,000 168,000	2,588,000 708,000	5,602,000 3,100,000	1,092,000 250,000	10,210,000 5,368,000	- -
	Arts/Physical Education (high/low)	423,000 169,000	2,588,000 694,000	7,562,000 2,768,000	1,092,000 300,000	13,092,000 5,734,000	- -
	Medicine (high/low)	181,000 175,000	1,040,000 812,000	6,336,000 3,524,000	993,000 460,000	11,318,000 7,076,000	- -

Source: Ministry of Education, Science, and Technology. Korean Educational Development Institute (2008), Annual Education Statistics.

iii. Output of Higher Education Institutes

a) Increase in number of Graduates of Tertiary Education Institutions

Over the last 60 years, Korean tertiary education institutions have fostered and produced talented people in the fields of politics, economics, society, science, culture, and art. These people have become leaders in their respective areas of society, helping to stimulate national development. Quantitatively, the number of graduates of tertiary educational institutions increased dramatically from 33 thousand in 1970 to 570 thousand in 2007. The numbers of graduates of both junior colleges and graduate schools have both increased rapidly.

<Table 6> Graduates of Tertiary Education Institution (Unit: persons)

Year	Total	Junior Colleges	Universities	Graduate Schools
1970	33,503	7,838	23,515	2,150
1975	51,182	14,106	33,610	3,466
1980	106,794	51,507	49,735	5,552
1985	210,548	73,927	118,584	18,037
1990	275,316	87,131	165,916	22,269
1995	355,244	143,075	180,664	31,505
2000	403,577	175,965	192,465	35,147
2005	542,196	223,489	214,498	53,379
2008	572,704	207,741	282,670	82,293

Source: Ministry of Education, Science, and Technology. Korean Educational Development Institute (relevant years), Annual Education Statistics.

b) Research Output

The number of PhDs awarded by universities increased from 2,481 in 1990 to 9,669 in 2007. As a result, the number of PhD holders for every 100 thousand persons increased threefold from 5.8 in 1990 to 18.7 in 2007. The cumulative number of PhD holders produced by Korean universities reached 128,179 in 2007.

<Table 7> PhDs produced by Korean Universities

Year	Number of PhD Holders	Number of PhD Holders per 100,000 Persons
1990	2,481	5.8
1995	4,107	9.1
2000	6,153	13.1
2005	8,602	17.8
2007	9,669	18.7

Source: Ministry of Education, Science, and Technology. Korean Educational Development Institute (2007).
Educational Statistics Analysis Handbook.

Although Korean tertiary education has had a shorter history than that of western countries, in which universities have been developed since the middle ages, Korea has produced numerous educated people which has helped to create a great amount of knowledge in a short period. As a result, the products of research (which can be considered knowledge creation) are constantly increasing in Korea. The Science Citation Index shows that the number of research papers published by Koreans increased from 9,854 in 1998 to 25,494 in 2007, placing Korea twelfth among 180 countries in this category. Accordingly, the share of Korean papers among globally published papers increased from 1.13% in 1998 to 2.17% in 2007.

B. CHARACTERISTICS OF KOREAN TERTIARY EDUCATION BY ERA³⁾

i. 1945 to late 1950s

After Liberation, the USA military government abolished the Japanese-style education system and replaced it with an American-style education system. Liberal education policies accommodated the Korean people's fervent desire for education and this brought a quantitative expansion in tertiary education institutions. The rapidly increasing demand for education was accommodated by private institutions, leading to a boom in new private universities.

After the Korean government was established in 1948, the education law was drafted in late 1949 to define the country's educational ideals, created a system to achieve them, and set a basic operating approach. The education law stated that the education system would take on the 6-3-3-4 school system, with four or six year universities (medical and dental schools would be six years in length), two or four year teachers' colleges, and two year junior colleges.

The Korean War caused most schools to close or evacuate, allowing them to survive in name only. On May 4, 1951, the government announced the "Special Wartime Law Regarding University Education" and aggregated all evacuating universities into the "Wartime Associated University." This amalgamation temporarily dispersed tertiary education from its confluence in the capital city of Seoul to the provinces, and was the turning point for the later creation of provincial national universities.

The demand for education was unabated even at wartime, causing a huge expansion in tertiary education and another boom in university establishment in the early 1950s during the war and immediately after the ceasefire. However, many of the new universities were substandard, and the

3) This passage mainly referred to "50 years of Education" by the Ministry of Education (1998).

government drafted a University Establishment Standards Law in 1955 to ensure that universities meet certain quality criteria. The law set minimum standards for new universities in terms of facilities and instructors, and later became an important legal mechanism in education quality control. In the late 1950s, after this law was introduced, the number of new universities fell dramatically, and some universities and departments were upgraded. In 1996, the University Establishment Standards Law was changed into the Regulations for University Establishment and Operation, but the basic content remained the same.

ii. 1960s and 1970s

After the April 19 Uprising in 1960, the new government in its efforts to build a democratic country strove to create a democratic education system, and liberalization and democratization pervaded the education sector. However, only a year after the uprising, the May 16 military coup occurred, and education policy was led by the military government for the next twenty years.

The government created five-year plans to develop the national economy, and the number of university students was fixed to fit manpower demand agendas. University policy shifted from liberal and laissez-faire to strict quality control. In the 1960s, universities were overhauled to manage quality, and control policies were implemented for private universities. The university overhaul proposal introduced in 1961 aimed to overhaul corrupt or chaotic universities, distribute universities throughout the country, downsize humanities studies, and increase industrial training. Guided by these principles, the government attempted to systematically foster talent by setting the total number of university students at 70 thousand, and massively overhaul national, public, and private universities.

In 1963, the “Private School Law” was implemented under the pretext of bringing independence to private educational institutions, but the real intent was to place private universities under public control. In 1966, the University Student Population Law and the Degree Registration System

were introduced to curb quantitative growth of the student population that ignored the students of private universities, and in 1969, the “University Entrance Preparatory Exam System” was introduced to maintain the quality of university students.

The 1970s could be seen as an era of university reform experimentation, with numerous experimental universities, university specialization projects, and the creation of junior colleges and broadcasting universities as new tertiary education systems (Korea National Open University is examined in detail in “outstanding models for tertiary education”). The experimental universities founded in 1973 required only 140 instead of 160 credits for graduation, had student population targets for each major, students were recruited by each university’s department or sector, a minor and joint major system was introduced, credits were earned by ability, a seasonal semester system was adopted, and tuition was paid per credit. The specialization of universities was introduced in 1974 with numerous intents including the efficient use of the education budget, role allocation among universities, the fostering of universities in the provinces, and encouragement of industry-academy cooperation (for details, refer to “University Reform Policies”).

iii. 1980s to mid 1990s

In the 1980s to mid 1990s, education reform was pursued in earnest. In 1980, the July 30 Education Reforms were implemented to deal with overheated private tutoring for high school students. In the mid 1980s, several educational reform organizations were created, including the Education Reform Deliberation Committee, Korea’s first Presidential audit organization, followed by the Education Policy Audit Committee and the Education Reform Committee, and education reform efforts continued.

On July 30, 1980, the “Measures to Normalize Education and Resolve Illegal Private Tutoring” was introduced to deal with the growing social problem of private tutoring. The July 30 Education Reforms included university reforms such as the abolition of the universities’ separate entrance exams, and inclusion of high school grades in university application,

introduction of a graduating population system, operation of day class system universities, expansion of university applicant quotas, expansion of KNOU, and extension of class period at teacher's colleges. The makers of the July 30 reforms thought the small class sizes at universities were the root cause of the private tutoring problem, and addressed this by drastically widening the door to university admissions (for details on the July 30 reforms, refer to "University Reform Policy").

During Korea's Fifth Republic (1979 to 1987), an education reform body was established directly under the President to conduct reform more systematically and comprehensively. The Education Reform Deliberation Committee was formed in March 1985 under the President and existed until December 1987. The committee proposed reforms including: individual admissions systems for universities, expansion and modernization of libraries, specialization and professionalization of instructor training, retirement pension system for professors, annulment of the professor reappointment system, expansion of basic science research systems at universities and graduate schools, and efforts to streamline the university education system. The Education Reform Deliberation Committee was significant in that it was Korea's first education reform organization directly under the President's authority during a time when other countries such as the USA and Japan were also conducting education reform (for details on the Education Reform Deliberation Committee, refer to "University Reform Policy").

During Korea's Sixth Republic (since 1987), the Education Policy Audit Committee was founded in February 1989 and was active for four years until February 1993. The committee proposed various reforms including: ways to recognize degrees earned through independent study, comprehensive measures for elementary, middle, and high school teachers, measures to improve university education, and ways to properly distribute tertiary education institutions. The Education Policy Audit Committee carried out the reforms introduced by the Education Reform Deliberation Committee, playing a transitional role between the Fifth and Sixth Republics (for details on the Education Policy Audit Committee, refer to "University Reform Policy").

iv. Mid 1990s to Present

The Kim Young-Sam government established the Education Reform Committee in the mid-1990s to conduct reforms in an era of information and globalization. Advocating liberalization, diversification, and specialization, numerous reforms were introduced, including: student-focused university operation, university diversification and specialization, systems to support self-efforts of each university, liberalization of university population, globalization and advancement of university education and research, and expansion of vocational continuing education opportunities. The Education Reform Committee's reforms are still being pursued as core policies by the Ministry of Education, Science, and Technology (for details on the Education Reform Committee, refer to "University Reform Policy").

In the late 1990s, in 2000, and during the Roh Moo-Hyun Government, the New Education Community Committee, Education & Human Resource Policy Committee, and Education Innovation Committee were respectively created to operate directly under the President's authority. These education reform bodies mostly continued the Education Reform Committee's policies rather than introducing new measures.

During the 1997 financial crisis, Korea underwent an arduous structural reform process to resolve issues such as bloated organizations throughout the economy, collusion between business and government, and chaotic business management, and as a result organizations underwent strict restructuring and employees were ruthlessly fired. A similar situation occurred in the education sector; since Korea's liberation, the number of elementary, middle, and high school students constantly increased, and universities kept growing and aimed to become general universities.

As birth rates in Korea have been declined since the early 2000s, demand for university admission will be reduced, revealing a crisis in university education. In addition, Korea's universities were not specialized; businesses complained that graduates did not meet corporate demand, while foreign evaluators gave Korean universities low marks for competitiveness.

As a result, the Ministry of Education, Science, and Technology saw a keen need for strengthening the competitiveness of Korea's universities, and in November 2003, introduced "Measures to improve University Competitiveness for a Forward Leap in the Era of 20,000 Dollar per-capita GDP." The core tasks of these measures were: ① enhance the independent capability of universities, ② improve education and research through competition, and ③ overhaul university application policies. These core tasks became the basic direction for later university reform efforts, and a master plan for university reform in the 2000s. Below, we will examine the main reforms to strengthen university competitiveness, including: university autonomy, university structural reform, Brain Korea 21, NURI, specialization of universities in Seoul, and support for specialization of junior colleges (Kim Young-Chul, 2005).

University autonomy was a part of the loosening of education regulations in the late 1990s and part of the general plan for university autonomy after 2000. In 2004, the "University Autonomy Promotion Committee" was created to lead the autonomy effort. Liberalization consisted of two stages: the first stage (2004 to 2005) focused on short term tasks, and the second stage (2006 to 2007) focused on mid and long term tasks. Liberalization policies are expected to continue under the Lee Myung-Bak presidency (for details, refer to "University Reform Policy").

In the 2000s, with an expanding consensus that universities were in crisis, the demand grew for change such as university structural reform, and in response, the Ministry of Education, Science, and Technology introduced the "Measures to reform University Structure to improve University Competitiveness" in December 2004. These measures revealed university information and assigned different priorities to evaluation and financial support, and allowed university autonomy policies to continue so that structural reform could be voluntarily undertaken (for details, refer to "University Reform Policy").

The Brain Korea 21 project was started in 1999 to develop world-class graduate schools and researchers. The project includes: fostering world-class graduate schools, setting the foundation for graduate school

development, developing provincial universities, and improving university research capability. From 2006, the second stage of BK 21 will be carried out until 2012 (for details, refer to “Outstanding Tertiary Education Model”).

The New University for Regional Innovation (NURI) was intended to strengthen the capability of regional universities within the framework of balanced regional development. NURI aimed to diversify and specialize regional universities through links with local governments, businesses, and research institutes, while improving the workplace competitiveness of students at these universities, and acting as a nerve center for regional innovation (for details, refer to “University Reform Policy”).

Until 2003, efforts to increase specialization in universities in Seoul were conducted through projects to increase specialization in public and private universities, pursue development plans at national universities, and develop regional universities. From 2004, financial support for universities outside of Seoul was carried out separately through the NURI project, and support for specialization of universities in Seoul was provided separately.

Efforts to promote specialization at junior colleges were intended to foster practical technicians, and included: structural reform and specialization to respond to changes in the industrial/employment structure and demographics, strengthening of links between junior colleges and the local economy, business, culture, and welfare, and expanding education conditions to improve education quality and promote cooperation between business and academia.

C. OUTCOMES OF KOREA'S TERTIARY EDUCATION⁴⁾

For the last sixty years, Korean tertiary education system has provided equitable education opportunities to raise the public level of education, produced talented people in every field of society, and produced and accumulated knowledge to contribute to learning and science and technology. Korean tertiary education has been a driving force behind the country's economic growth and industrialization, and has also raised the consciousness of the public, contributing to democratization.

i. Raising the Nation's Education Level

The opportunities for higher education have expanded greatly with the growth of tertiary education. The number of university students increased from only 7,800 at liberation to 3.56 million in 2008. With this increase in the student population, the percentage of students receiving tertiary education has exploded to reach 69.4% in 2007. Thus, in the 1970s, tertiary education was in the elite stage, in the mass stage in the 1980s, and entered universal stage in the 2000s.⁵⁾

4) This passage was extracted from "Korea's Tertiary Education: Results and Tasks" by Kim Young-Chul (2008), presented at the "Education Community's Discussion on 60 Years of Korean Education: Results and Tasks" held on November 26, 2008 by the Korean Federation of Teachers' Associations, Korean Educational Research Association, and Korean Educational Development Institute.

5) Based on Martin Trow's development stages for tertiary education, a proliferation rate of less than 15% indicated an elite education system, while a mass education system had a rate between 15% and 50%, and a universal education system had a rate over 50%.

<Table 8> Enrollment Rate by Education Level (%)

Year	Elementary School	Middle School	High School	Tertiary
1970	92.0	36.3	20.3	5.4
1975	97.8	56.2	31.3	6.7
1980	97.7	73.3	48.8	11.4
1985	-	83.0	64.2	22.9
1990	100.5	91.6	79.4	23.6
1995	98.2	93.5	82.9	36.0
2000	97.2	95.0	89.4	52.5
2005	98.8	94.6	91.0	65.2
2007	99.3	96.0	91.3	69.4

Note: i. Enrollment Rate= (students of suitable age attending/students of suitable age) * 100

ii. The suitable age for attending elementary school is 6 to 11, middle school 12 to 14, high school 15 to 17, and tertiary institutions is 18-21.

iii. Tertiary education institutions include all tertiary education institutions. However, from 1985 to 1995, technology universities were not included.

Source: Ministry of Education, Science, and Technology. Korean Educational Development Institute (2007). Educational Statistics Analysis Handbook.

The increased enrollment rate of tertiary education resulted in a higher education level for the Korean public. The percentage of persons over 25 who were college graduates increased from 4.9% in 1970 to 31.4% in 2005. The percentage of persons who only graduated elementary school decreased rapidly. This trend can also be seen in the average years of schooling received by a citizen over 30, which increased from 9.67 in 1995 to 10.24 in 2000 and 11.01 in 2005.

ii. Gender Equality and Balanced Regional Development in Tertiary Education

As opportunities for tertiary education expanded, these opportunities were also distributed more equally. This trend was especially apparent in educational opportunities between genders and among different regions of the country. In terms of gender equality, the percentage of female students at junior colleges increased from 24.8% in 1970 to 38.8% in 2007, and the

percentage of females at universities rose from 22.3% in 1970 to 37.1% in 2007. The increase of females attending graduate schools is worth special note. The percentage rose from 12.1% in 1970 to 46.2% in 2007, exceeding the percentage of females at junior colleges and universities.

<Table 9> Percentage of Females at Junior Colleges, Universities, and Graduate Schools (%)

Year	Junior College	University	Graduate School
1970	24.8	22.3	12.1
1975	28.2	26.5	16.4
1980	25.9	22.5	17.0
1985	36.0	26.8	18.3
1990	36.9	28.5	22.5
1995	37.6	31.9	28.1
2000	37.1	35.8	34.9
2005	37.1	36.3	44.3
2008	39.6	37.4	47.0

Source: Ministry of Education, Science, and Technology. Korean Educational Development Institute (2007). Educational Statistics Analysis Handbook.

The distribution of tertiary education institutions throughout the country can be seen in the percentage of these institutions and their students in Seoul. The percentage of junior colleges in Seoul fell steadily from 12.6% in 1980 to 8.3% in 2007, and is almost too low considering the growth of Seoul's population.

Although the number of universities in Seoul has not changed significantly since 1970, the percentage of students at these universities decreased from 66.9% in 1970 to 23.7% in 2007. As a result, the percentage of students in universities in Seoul is now similar to Seoul's share of the total population. This appears to have been caused by policies intended to prevent the country's population from concentrating in the capital by restricting the establishment of new universities in Seoul or even the expansion of existing ones.

Despite this, the centralization of graduate schools in Seoul remains high.

The percentage of students at graduate schools in Seoul rose to 80.9% in 1970, and then decreased to 45.1% in 2007, but the figure remains high compared to Seoul's share of the total population. In addition, 18 of 36 recently-established graduate schools are based in Seoul.

This equalization of education opportunities has furthered gender equality and promoted balanced regional development.

<Table 10> Percentage of Tertiary Education Institutions in Seoul (%)

year	Junior college		University		Graduate school	
	schools	students	schools	students	schools	students
1970	-	-	53.5	66.9	62.5	80.9
1975	-	-	50.0	59.7	56.1	77.6
1980	15.6	12.6	43.5	42.7	52.9	70.2
1985	15.0	12.8	36.0	33.1	49.8	65.3
1990	12.8	10.6	31.8	27.7	38.9	58.0
1995	10.3	8.6	26.7	26.2	40.1	53.3
2000	8.2	7.1	24.2	25.4	37.6	47.0
2005	7.6	7.8	22.0	24.0	34.9	46.8
2008	6.8	8.5	21.3	22.7	32.6	43.7

Source: Ministry of Education, Science, and Technology. Korean Educational Development Institute (2007). Educational Statistics Analysis Handbook.

iii. Fostering Talent: Producing Leaders in Society

During the past 60 years, Korean tertiary education has produced talented people who have worked in every sector of society including politics, economy, society, science, culture, and art. These graduates have become leaders and innovators in their respective fields, which has spurred national development. This paper will not attempt to list the talented people produced by tertiary education institutions due to the diversity of fields in which people were trained, wide range of areas in which people are working, and limited statistical data. In terms of quantity alone, the number of graduates of tertiary education institutions rose from 33,000 in 1970 to 570,000 in 2008 (see Table 6).

The number of PhDs produced by universities grew from 2,481 in 1990 to 9,669 in 2007, resulting in a more than threefold increase in the number of PhDs per 10 thousand persons from 5.8 in 1990 to 18.7 in 2007. The cumulative number of PhDs produced by Korean universities until 2007 reached 128, and 179 in 2007.

The relation between tertiary education and the training of talent can be seen most clearly in science and technology, where academics and work duties are closely associated. As part of the government's economic development efforts in the 1960s and 1970s, manpower supply plans were created and experts in science and technology were systematically fostered. As these experts were hired in the science and technology industries, these fields underwent dramatic growth. The efforts of these people were critical to Korea's rapid economic development.

iv. Creation and Accumulation of Knowledge: Development of Academics

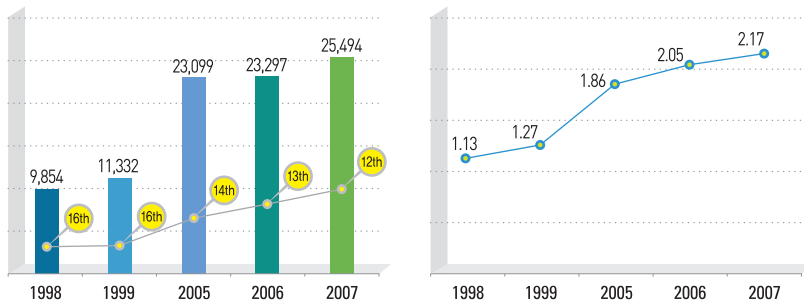
Through teaching, research, and services, tertiary education institutions produce, diffuse/transmit, and apply new knowledge.⁶⁾ Tertiary education institutions are the only institutions that fulfill all three of these knowledge activities which are critical to a knowledge based economy. These knowledge activities have improved academics in every field, as well as science and technology, and culture and art.

Although Korea has a much shorter history of tertiary education than the western countries, it has created a considerable amount of knowledge in a relatively short period of time. As a result, the products of research are constantly growing in Korea. The Science Citation Index shows that the number of research papers published by Koreans increased from 9,854 in 1998 to 25,494 in 2007, placing Korea twelfth among 180 countries in this category. Accordingly, the share of Korean papers among globally

6) Becker and Lewis (1993) categorize the knowledge activities of tertiary education into the production, diffusing, and transmission of knowledge.

published papers increased from 1.13% in 1998 to 2.17% in 2007. A major factor in these results is the growth in research output due to the government’s recent proactive policies such as BK 21.

<Figure 1> Papers Published by Koreans and Share of World Publications(%)



Source: Ministry of Education, Science, and Technology, Press Release (September 10, 2008)

Korea’s knowledge activities since liberation can be reflected in the number of intellectual property rights registrations. This figure rose from 11 in 1948 when the Korean government was established, to 230 thousand in 2007, and a total of 263 thousand intellectual property rights were registered during the last 60 years. The number of patent registrations, many of which are in the fields of science and technology, rose from 4 in 1948 to 120 thousand in 2007. This rapid growth in intellectual property rights over the last 60 years reflects the development of Korea’s ability to create knowledge due to factors including tertiary education.

v. Economic Development and Improvement in Living Standards: Industrialization

Korea lacked natural resources and had to depend entirely on human resources to begin economic development. Educated persons produced by tertiary education played leading roles in developing the industry and economy. During the 1960s and 1970s when economic development plans were underway, science and technology manpower were produced according to national manpower plan, and the required number of manpower could be sent to industrial sites. As a result, Korea was able to achieve its amazing economic development.

From the early 1960s when the first Five-Year Economic Development Plan was introduced to the late 1990s when the financial crisis arose, the Korean economy grew by nearly 10% a year, causing foreign observers to call it the “Miracle of the Han River” or one of the “four tigers.” Thanks to economic growth, national income also rose steadily. In the early 1960s, Korea was an undeveloped country with a per capita income below 100 dollars, but by the mid 1990s it was a middle-income country with per capita income of 10,000 dollars, and in 2007, per capita income was 20,000 dollars.

The industrial structure changed dramatically with economic development. The agrarian economy developed into an industrial economy, and then became a service based economy. Until the 1950s, the Korea’s economy was based on agriculture, but it transformed into an industrial economy in the 1960s and 1970s, heavy industries such as automobiles and shipbuilding were targeted in the 1980s and 1990s, and new industries such as aviation and electronics were developed. In the 2000s, knowledge industries such as semiconductors, mobile telecom, and movies have come to the forefront. This industry development was largely led by university graduates who received tertiary education. Thus, it can be said that higher education in Korea played a central role in the country’s industrialization.

vi. Raising of Public Consciousness: Democratization

Korean tertiary education played a role in raising the overall public consciousness and stimulating democracy. Education contributes to political development by modernizing a nation's political values, political socialization, instilling an attitude of political participation, and fostering political leaders (Lee Yeong-Deok et al. 1975). Tertiary education had a significant impact on Korea's political development, as political consciousness and activities thrived as the education level improved. In the past sixty years, the education of leading people in the political or administrative sector such as national assembly members or high level bureaucrats have improved dramatically, and we can see that tertiary education had a major effect on raising the consciousness of political leaders.

As tertiary education increased the public's political consciousness and activities, the foundation was laid for democratization. These conditions were the basis of the April 19 revolution, the May 18 democracy movement, and the June 10 democracy struggle. Because university students and professors directly participated in these democratization movements, it can be said that Korean tertiary education played a decisive part in these movements. From this perspective, tertiary education set the foundation for democratization in Korea, and was also the agent that achieved democracy at the decisive moment.

As the public consciousness advances, the struggle for democracy has been succeeded by demands for liberalization. Liberalization is based on the premise that the conditions for liberalization are mature and the ability to liberalize has increased. The development of public consciousness shows that Koreans are not merely demanding liberalization, but have the ability to exercise it, and this will further promote liberalization in Korea.

D. INTERNATIONAL EXCHANGE OUTCOMES OF KOREAN TERTIARY EDUCATION

i. Koreans Studying Abroad

The number of Koreans studying abroad continues to increase. Especially since the 1990s, a rapid increase occurred. The number of students abroad rose from 24 thousand in 1985 to 106 thousand in 1995, and 218 thousand in 2007.

By location, 48.5% of Korean students are studying in Asia/Oceania, 33.0% in North America, and 18.2% in Europe. Among students studying for degrees, 50.1% are in North America, 37.8% are in Asia/Oceania, and 18.2% are in Europe. In addition to studying for degrees, many students are studying languages abroad. In Asia/Oceania and Europe, the number of language students from Korea exceeds those studying for degrees.

By country, most Korean students are in the USA (27.1%), followed by China (19.4%), Japan (8.7%), England (8.4%), Australia (7.6%), Canada (5.9%), and New Zealand (4.0%).

<Table 11> Korean Students Studying Abroad (Unit: persons)

Year	1985	1995	1997	1999	2001	2003	2004	2005	2006	2007
Students	24,315	106,458	133,249	120,170	149,933	159,903	187,683	192,254	190,364	217,959

Source: Ministry of Education, Science, and Technology. Korean Educational Development Institute (2007). Educational Statistics Analysis Handbook.

<Table 12> Korean Students Studying Abroad by Continent (2007) (Unit: persons)

Region	Degree			Language study	total
	Graduate school	university	subtotal		
Asia/Oceania	12,339	34,544	46,883	58,848	105,731
Africa	9	108	117	149	266
North America	26,202	35,921	62,123	9,755	71,878
Central/South America	13	33	46	144	190

Region	Degree			Language study	total
	Graduate school	university	subtotal		
Europe	3,365	11,344	14,709	24,974	39,683
Middle East	65	22	87	124	211
Total	41,993	81,972	123,965	93,994	217,959

Source: Ministry of Education, Science, and Technology. Korean Educational Development Institute (2007).
Educational Statistics Analysis Handbook

<Table 13> Korean Students by Major Country (2007) (Unit: persons, %)

Country	USA	China	Japan	England	Australia	Canada	New Zealand	Other
Students	59,022	42,269	19,065	18,300	16,591	12,795	8,707	41,219
Percentage(%)	27.1	19.4	8.7	8.4	7.6	5.9	4.0	18.9

Source: Ministry of Education, Science, and Technology. Korean Educational Development Institute (2007).
Educational Statistics Analysis Handbook.

ii. Foreigners Studying in Korea

Although there are far fewer foreigners studying in Korea than Koreans studying abroad, the number has been growing rapidly in recent years. In 2003 there were 12 thousand foreign students in Korea, and this number increased to 64 thousand in 2008. This increase was the result of recent efforts by the government and universities to attract foreign students, and the trend is expected to continue in the future.

By course of study, 44% and 19% of foreign students in Korea are studying for graduate or undergraduate degrees respectively, while 31% are studying language. By source of funding, 86% of foreign students are paying for their education, while 8% were invited by the university, 1% invited by the Korean government, and 1% invited by their country's government.

93% of foreign students come from Asia, and 3% and 2% come from

North America and Europe respectively. By country, 70% of students come from China, 5% from Japan, 3% from Mongolia, 3% from Vietnam, 2% from USA, and 2% from Taiwan.

<Table 14> Foreign Students in Korea (Unit: persons)

Year	2001	2003	2004	2005	2006	2007	2008
Students	11,646	12,314	16,832	22,526	32,557	49,270	63,952

Note: Statistics for 2002 were not collected.

Source: Korean Education Development Institute (2004), "2004 Korean/International Foreign Student Statistics" (unpublished); Ministry of Education, Science, and Technology (2008), internal materials.

<Table 15> Foreign Students by Course (2008) (Unit: persons)

Items	University	Language Study	Graduate School	Other Study	Total
Students	28,197	19,521	2,388	3,846	63,952
Percentage(%)	44	31	19	6	100

Source: Ministry of Education, Science, and Technology (2008), internal materials.

<Table 16> Foreign Students by Funding (2008) (Unit: persons)

Items	Self-paid	Invited by University	Invited by Korean Govt	Sent by Foreign Govt	Other (exchange student, etc)	Total
Students	54,934	5,010	837	587	2,584	63,952
Percentage(%)	86	8	1	1	4	100

Source: Ministry of Education, Science, and Technology (2008), internal materials.

<Table 17> Foreign Student Origins by Continent and Country (2008) (Unit: persons)

Continent	Region	Asia	N. America	Europe	Africa	South America	Oceania	-	Total
	Students	59,375	2,165	1,559	397	278	178	-	63,952
	Percentage(%)	93	3	2	1	1	-	-	100
Country	Country	China	Japan	Mongolia	Vietnam	USA	Taiwan	Other	Total
	Students	44,746	3,324	2,022	1,817	1,481	1,158	9,404	63,952
	Percentage(%)	70	5	3	3	2	2	15	100

Source: Ministry of Education, Science, and Technology (2008), internal materials.

iii. Attracting Foreign Professors

Along with foreign students, foreign faculty help to globalize Korean universities through interaction. In 2006, 2,540 foreign professors were working in Korean tertiary education institutions. They accounted for merely 3% of the 93,832 total faculty members at these institutions. By nationality, professors from the USA and Canada accounted for 57.8% of all foreign faculty members.

<Table 18> Foreign Professors by Nationality (2006)

Country	USA	Canada	Japan	China	Other	Total
Foreign Professors Percentage (%)	974 (38.3)	496 (19.5)	278 (10.9)	218 (8.5)	574 (22.6)	2,540 (100)

Source: Ministry of Education, Science, and Technology. Korean Educational Development Institute (2006). Educational Statistics Analysis Handbook

iv. International Academic Exchange and Cooperation

Korean universities are expanding their academic exchanges with foreign universities. In 2005, there were 1,195 student exchanges, accounting for 45% of all academic exchange, followed by 456 scholarly exchanges (17%), 417 sister affiliations (15%), and 256 exchange professors (9%). By country, China had 705 academic exchanges (26%), followed by the USA with 634 (23%), Japan with 499 (18%), Australia with 108 (4%), and Canada with 106 (4%) (Ministry of Education, Science, and Technology. Korean Educational Development Institute, 2006).

Korean universities have increased their exchanges with foreign universities, students, and professors. In 2005, 115 universities conducted 1,385 academic exchanges with 61 countries, with 9,188 Korean students earning 104,082 credits and 2,006 foreign students earning 28,609 credits (Ministry of Education, Science, and Technology. Korean Educational Development Institute, 2006). Exchange professors took on various forms including individual research, joint research, special lectures, and seminars.

In 2005, 97 Korean universities conducted exchange professors with 48 countries, with 903 Korean professors and 533 foreign professors taking part (Kim, 2006).

Recently, Korean universities have introduced joint degree and dual degree programs. In 2005, 14 universities offered dual degree programs that award degrees from both Korean and foreign universities, while four universities offered joint degree programs that award a degree in the name of a Korean and foreign university.

<Table 19> Dual Degree Programs (2005)

Universities	Programs	Degrees Awarded	Operating Format (Lecture Period)				
			4 years	2+2 years	3+1 year	1+1 year	Other
14	17	100	1	9	2	3	2

Source: Ministry of Education, Science, and Technology, internal materials.

<Table 20> Joint Degree Programs (2005)

Universities	Participating Countries	Jointly Operated Areas	Languages Used
4	3	6	2

Source: Ministry of Education, Science, and Technology, internal materials.

In addition to the above, foreign universities are establishing branches in Korea, mostly in the Incheon Special Economic Zone and in Jeju International City. The Netherlands Sea Transport College Kwangyang Branch (STC-K) opened in March 2008, and Finland's Helsinki School of Economics (HSE) signed an MOU with Jeju Island in February 2008 and is undergoing evaluation for establishment. Other universities that have signed MOUs include SUNY and North Carolina State University in Incheon, Germany's FAU in Busan, and a design university in Kwangyang.

Meanwhile, Korean universities are receiving requests from Middle Eastern countries to start branches abroad that concentrate on cutting-edge technology fields such as IT.

<Table 21> Attraction of Foreign Tertiary Education Institutions

Region		Foreign Institution	Progress	Inducing Government Organization
Incheon	Songdo	SUNY, North Carolina State	- Oct. 2007: MOU signed with Incheon Office - Sept. 2010: North Carolina State Univ Opening Planned Will be created as part of the Songdo Global Campus	Incheon Office
	Cheongra	Knowledge Village	- Sept. 2008: area developer will be selected (after selection, 5 universities including Les Roches will be built) Knowledge village will house numerous universities for each field in a small setting	Korea Land Corporation
Kwangyang	Netherlands Sea Transport Kwangyang Branch (STC-K)	- Nov. 2004: MOU signed between STC and Kwangyang FEZ Office - Jan. 2008: Ministry of Education approves founding - Mar. 2008: Founding	Ministry of Land, Transport, and Maritime Affairs, Kwangyang FEZ Office, Kwangyang City	
	Design School	- Sept. 2008: MOU signing planned (Design school will have 1,800 students) -Sept. 2008: evaluation application planned	Kwangyang FEZ Office	
Busan	Germany's FAU	- Feb. 2008: MOU signed with Busan City, Busan Economic Office	Busan Jinhae FEZ Office, Busan City	
Jeju	Finland's Helsinki School of Economics	- Feb. 2008: MOU signed with Jeju Island	Jeju Special Government	

Source: Ministry of Education, Science, and Technology, internal materials.

2

Overview and
Analysis of
Major Policies

2. OVERVIEW AND ANALYSIS OF MAJOR POLICIES

A. OVERVIEWS OF MAJOR POLICIES

i. University Establishment and Student Quota Policy

Beginning in the 1950s, the government introduced controls on university creation and student populations to prevent the uncontrolled proliferation of universities and improve education quality. In the 1960s, regulations were expanded to student limits in special fields and at universities in Seoul to train teachers, control the supply of medical practitioners, and prevent excessive growth in Seoul's population. Among Korea's higher education policies, measures regarding university establishment and student limits had the greatest effects on university education while best reflecting the government's policy directions in this area. This is because the government uses these policies as means of controlling universities. University establishment and student population policies are so closely related that there is little need to describe them separately.

University establishment and student population policies almost exactly represent the policy character of the era. Although there are slight differences in the classification of policy eras, it is agreed that the eras include the free laissez-faire period (1945 to late 1950s), student population restriction period (1960s and 1970s), quantitative expansion (1980s), and liberalization (1990 to present).

a) Free Laissez-faire Period (1945 to late 1950s)

After liberation, university establishment and student population policies, like other education policies, were created in an unrestricted and open

atmosphere (Yoon Jung-II, et al. 1996). As pent-up demand for education exploded, education opportunities could not keep up with demand. The government can therefore be seen as having actively encouraged citizens to pursue higher education with its liberal university establishment and student population policies.

As a result, there was a boom in the founding of new universities in this era and a significant portion of the demand for education was met by private universities. This set the foundation for today's tertiary education structure which is led by private universities, and the proliferation of substandard private universities in this era became a pretext for greater government control.

The Korean War that broke out in 1950 brought excruciating suffering to the Korean people. However, even during the chaos of war, the desire for education remained high and tertiary education during the war and in the early 1950s expanded dramatically with a boom in new universities. Based on the Wartime Associated University, national universities were founded in each province to promote balanced regional development. With so many new universities being created, many of these were substandard, and in response, the government drafted the "University Establishment Standards Law" in 1955, which set minimum requirements for the facilities and faculty needed for new universities, and became an important legal mechanism in controlling university quality. After the law was introduced, there was a dramatic decline in new universities established in the late 1950's, and some universities and departments were overhauled. In 1996, the law was renamed the "University Establishment Operation Regulations," but the law's basic structure remained intact.

b) Student Population Restriction Period (1960s and 1970s)

The military government that took power in 1961 installed strict controls and monitoring of universities to maintain quality. Policies regarding university establishment and student population were the most powerful policy tools available for this purpose. Substandard universities were prevented from forming, and the student population was scaled down. This

approach was embodied in the university renewal program of the early 1960s.

Started in 1961, the university renewal program's basic principles were to overhaul corrupt or chaotic universities, distribute universities throughout the country, and downsize humanities studies while expanding technical education. The nationwide student population was set at 70,000 to meet national demand for graduates, private universities were required to put 30% of their current expenses into a foundation, mandatory retirement at 60 was introduced for professors, national exams for university admission and university graduation were introduced, and professor research output was monitored.

To revamp national and public universities, separate colleges in the same region were absorbed into general universities, and colleges in the same field were amalgamated for each province. In addition, departments within a university that had similar teaching content were combined, and public universities were absorbed into national universities while respecting the opinion of their respective founders. Two-year universities were restricted to the technical fields, leading technical high schools were annexed to agricultural/industrial/fishery universities, night school at 2-year universities were restricted to departments that already had night classes, and the nationwide distribution of different departments was adjusted.

As a result of these reforms, the number of 4-year universities fell from 71 to 50, and the student population declined from 91,920 students in 679 departments to 66,410 students in 532 departments. In addition, because the reforms were forcibly introduced by the authorities, there was a dramatic loss in university autonomy and university administrators were demoralized. Therefore, in 1962, university reform policies were partially changed, and by 1964 university reform had returned to its original state.

From 1966, efforts were made to halt the uncontrolled expansion of the student population at private universities in the form of the "University Student Population Law" and the "Degree Registration System." These measures made it much more difficult for universities to adjust student

populations. However, because some universities continued to ignore student population restrictions by taking advantage of the audit student system, the government introduced the “university admission preparatory exam” in 1969 (this is described in “university admission policy”).

During this period, the government determined university establishment and student population policies to fit economic development or manpower supply plans, and it strictly regulated the student populations of national and public universities, teacher’s universities, medical departments, and universities in Seoul. Currently the Minister of Education, Science, and Technology is responsible for determining the number of future teachers according to Article 28 of the Tertiary Education Law, future doctors according to Article 2.1 of the Medical Law, future medical technicians according to Article 1 of the Law regarding Medical Workers and Technicians, future pharmacists and Korean medicine practitioners according to Article 2.2 of the Pharmacist Law, and student populations of schools under quantitative regulations, national universities, and public universities according to Article 18.3 of the Capital Region Revision Law.

c) Quantitative Expansion (1980s)

In the 1970s, with the rapid increase in the university age population, rising national income, and desire for education, the number of people attempting to enter university increased dramatically. Despite this development, the military government of the 1960s and 1970s did not increase the university student population, and in 1980, the total number of students entering universities and junior colleges was only 150,000. Because of this severe imbalance between supply and demand for university education, overheated private tutoring to get into university flourished and the number of students retaking university entrance exams accumulated.

To resolve this social problem, the government introduced the “measures to normalize education and resolve excessive private tutoring” on July 30, 1980, which included implementing a graduates quota system and dramatically expanding the student population. The July 30 education reforms included the following policies regarding university establishment

and student population.

First, a “graduates quota system” was applied to new students beginning in 1981, and the former freshman quota system was abolished. As a certain number of students were added to the graduating quota, the number of students was considered in the selection of the freshman quota. So in 1981, the size of the freshman quota was set at 130% of the graduating quota, and would be increased each year. The “expansion of the freshman quota” was aimed at increasing the freshman quota every year, and in 1981 the quota grew by 105,000 students. The system included applying the full day lecture system and graduating quota system, expanding small departments, enlarging existing departments and colleges, absorbing colleges into universities, and encouraging the establishment of new universities. To achieve this, more professors were hired, large scale lecture methods were adopted, and exchange professors between Seoul and the provinces were expanded. Full day lecture schedules were adopted to make the most use of university facilities and teachers.

The Korea National Open University was expanded with the creation of the bachelor’s degree programs in 1982, and 2-year programs and student populations were expanded. The degree programs at teacher’s universities were extended from two to four years. This change was applied to selected universities in 1981, and expanded to all teacher’s universities by 1984.

Through the measures above, the July 30 education reforms drastically expanded Korea’s student population beginning in the early 1980s, creating a major transition from the government’s restriction of student populations in the 1960s and 1970s.

d) Liberalization (1990 to present)

Korea’s democratization movement of the late 1980s continued as a liberalization trend in university establishment and student population in the 1990s. The Education Reform Committee adopted liberal education policies that focused on student needs, introducing policies like the “university establishment guidelines” and “liberalization of the student population.”

Under the “university establishment guidelines” the strict evaluation standards for approving new universities were replaced by a simple check of whether the university met standards for facilities, teachers, and finances stipulated in the “university establishment and operation regulations.” The adoption of the new evaluation system made it much easier for universities to be established and many new universities were created. In addition, the government encouraged the founding of independent graduate schools to train expert personnel, and the number of these institutions also increased.

According to the “university student population liberalization” policy proposed by the Education Reform Deliberation Committee, an “overall approval system” was introduced in 1996 in which individual universities freely adjusted student populations within the limits set by the Ministry of Education by creating or expanding departments, etc, and an “education conditions linking system” was announced in 1997, which allowed universities that met certain criteria to freely increase student populations. In addition, outstanding provincial private universities were also allowed to increase their student populations. These policies allowed universities to adjust their populations, and made restructuring easier by letting them create or remove departments, etc. In addition, to prevent the market from collapsing due to the rapid decrease in the college-age population in the early 2000s, the government began a restructuring effort to stabilize the supply and demand of higher education, and provided administrative and financial incentives for universities to differentiate and diversify. In response to this initiative, some universities voluntarily created and implemented reform plans.

As described above, university establishment and student population policies were important means for the government to control the quality of tertiary education. The government’s approach shifted from strict regulation in the 1960s and 70s to an approach that was more liberal on the whole except regarding student population in certain sectors (national and public universities, teachers’ universities, medical universities, and universities in Seoul).

ii. University Admission Policy

As the perception that worldly success required graduation from a top university began to take root in Korea, competition for university admission became intense. Competition became even fiercer when high school admissions tests were abolished in 1974 and high school standardization policies were introduced, causing university applications to soar. As a result, university admission is now the most sensitive part of the education policy not only for policy makers, but also for the public. Due to this sensitivity, university admission is a much discussed topic and the system is constantly being revised. These revisions were made to resolve educational and social problems arising from excessive competition due to the high demand for higher education, rather than reflecting changes in the philosophy and character of university education.

Since liberation, Korea's university entrance system has gone through twelve stages: 1) separate exams for each university (1945 to 1953), 2) national general university admission exam and separate exams for each university (1954), 3) separate exams for each university (1955 to 1961), 4) national exam to qualify for university admission (1962 to 1963), 5) separate exams for each university (1964 to 1968), 6) university admission preparatory exam and separate exams for each university (1969 to 1980), 7) university admission preparatory exam and high school record (1981), 8) university entrance exam and high school record (1982 to 1985), 9) university entrance exam, high school record, and essay (1986 to 1987), 10) university entrance exam, high school record, and interview (1988 to 1993), 11) college scholastic ability test, high school record, and separate exams for each university (1994 to 1996), and 12) process decided by each university (since 1997). Each stage of the admission system's development is described below.

① Separate exams for each university (1945 to 1953)

In this unstable period, Korea was liberated, the USA military government was installed, followed by the creation of the Korean government, and then the Korean War. University policies were led by the institutions themselves rather than the government, and separate exams were taken for each university.

② National general university admission exam and separate exams for each university (1954)

To rationalize the university system and improve the quality of entrance exams, applicants were required to take a “national general university admission exam” as well as separate exams for each university.

③ Separate exams for each university (1955 to 1961)

Because problems became apparent with the above system including the burden of having to take two exams and the loss of education opportunities for applicants who failed the national exam, the system was abolished and separate exams for each university were adopted.

④ National qualification exam to qualify for university admissions (1962 to 1963)

To prevent unfair admission or the acceptance of incapable applicants, and to improve the quality of university education, a “national exam to qualify for university admission” was adopted. The exam tested qualification for university acceptance and was similar to a selection test. The number of applicants who passed the national exam was set at 110% of the university population, and acceptances were granted separately for males and females to expand higher education opportunities for women. During this era, a “national exam for university graduation” was also administered to control the quality of graduates.

⑤ Separate exams for each university (1964 to 1968)

The national exam restricted the freedom of universities, so separate exams for each university were adopted to increase freedom.

⑥ University admission preparatory exam and separate main exams for each university (1969 to 1980)

Separate exams by institution caused problems such as excessive acceptance of students, unfair admission, and inefficiency in managing the student population. As a result, the nationally-administered “university admission preparatory exam” was introduced to be taken in conjunction with separate main exams by university. Initially, the preparatory exam was similar in format to a qualification exam, but later became more like a

selection exam. The main exam was a competitive exam in a certain field and many think that it was a cause of the excessive private tutoring that would arise in later years.

⑦ University admission preparatory exam and high school record (1981)

The education reform measures of July 30, 1980 abolished the separate exams and instead, the “university admission preparatory exam” and high school records were used as admission criteria.

⑧ University entrance exam and high school record (1982 to 1985)

The “university admission preparatory exam,” which was similar to a licensing exam, was replaced by the “university entrance exam,” which more resembled a scholastic aptitude test.

⑨ University entrance exam, high school record, and essay (1986 to 1987)

Universities argued that they needed a measure of an applicant’s ability for higher thought, so an essay was added to the university entrance exam and high school record.

⑩ University entrance exam, high school record, and interview (1988 to 1993)

The essay was abolished and replaced by an interview.

⑪ College scholastic ability test, high school record, and separate exams by university (1994 to 1996)

Some argued that an applicant’s mental aptitude could not be measured by a university entrance exam, high school record, and interview alone. The interview was replaced by separate exams for each university.

⑫ Screening methods decided by each university (since 1997)

With growing consensus that admission should be independently determined by each university, universities were gradually given control over the admission process including the use of screening materials and screening periods. This trend produced the “Reform Measures for the 2002 University Admission System” and the “Reform Measures for the 2008

University Admission System.” The “Reform Measures for the 2002 University Admission System” gave universities complete control over their admissions policy except for the Three Prohibitions Policy(TPP) which forbid use of university-managed exams that emphasized Korean language, English, and Math, the use of high school rankings as a criteria, and the adoption of an admission-by-contribution system. The “Reform Measures for the 2008 University Admission System” aimed to prevent excessive competition for scores by applying a ranking system to the scholastic ability test and high school grades.

As examined above, university admission policy since liberation has oscillated between a regulatory approach where the government tries to prevent primary and secondary schools from becoming university cram schools while preventing unfairness and irrationality in admissions managed by universities, and an unregulated liberal approach where freedom of university operation is emphasized. Despite from the past efforts, debate continues regarding the existence of the Three Prohibitions Policy(TPP) of separate exams for each university, high school rankings as criteria, and admission-by-contribution. With regards to this, the Lee Myung-Bak government has announced plans to completely liberalize university admissions in a three-phase process.

iii. University Reform Policy

This section will examine the reform measures that had an enormous impact on tertiary education policy.

a) Experimental University Policy

The discussion on university reform officially began at the Seoul National University amalgamation proposal and the long term comprehensive education plan proposal (1977 to 1986), and was further developed by the activities of the Education Policy Deliberation Committee’s Tertiary Education Sub-Committee which was formed in 1971 (Ministry of Education, 1998). As a result, to avoid generalized reform and encourage

flexible reforms that recognized the autonomy of each university, ten experimental universities were established in 1973. As the scope of the experimental universities' activities were expanded, the credits required to graduate were reduced from 160 to 140, and the universities were allowed to decide how to manage student populations in each department and students could be recruited either by university or by department. In addition, students were allowed to select minors or multiple majors or earn credits according to their ability, a seasonal semester program was introduced to maximize use of facilities, the tuition system was revised to include payment by credit, and credits were calculated based on the hours completed each semester.

Along with the introduction of experimental universities, the government also pursued university specialization measures in 1974 for reasons including efficient use of education finances, allocation of roles among universities, development of provincial universities, promotion of business-academic cooperation, etc. As a result, 51 departments in 18 universities were selected for specialization and 150 million won was allocated as experimentation costs. Other forms of support were also provided including research funding for professors, scholarships for students, priority provision of foreign currency or loans, and priority class allocation.

b) July 30 Education Reform Measures

In the 1970s, with the rapid increase in the university age population, rising national income, and desire for education, the number of people attempting to enter university increased dramatically. Despite this development, the military government did not increase the university student population, and in 1980, the total number of students entering universities and junior colleges was only 150,000. Because of this severe imbalance between supply and demand for university education, overheated private tutoring to get into university flourished and the number of students retaking university entrance exams accumulated.

To resolve this social problem, the government introduced the “measures to normalize education and resolve excessive private tutoring” on July 30,

1980. These measures include the following.

- Abolition of the university-managed exam and inclusion of high school records:

The main exams managed by each university, the key cause of private tutoring, were abolished, and a high school record system was introduced to normalize high school education. As a result, universities selected students based only on high school records and the university entrance preparatory exam, and the importance of high school records was gradually increased until the preparatory exam was abolished and only school records were used to determine university admission.

- Expansion of the student quota:

To reduce competition for university admission, which was the cause of excessive private tutoring, opportunities for university admission had to be expanded. Considering that in the 1960s and 70s, the student population was practically frozen while demand for university education rapidly increased, it was inevitable that the student population had to be expanded. With this expansion, a graduating class size system was introduced to maintain education quality, and a full day lecture system was adopted so that limited education facilities could be used to the fullest. In addition, small departments were enlarged, departments and colleges of existing universities were expanded, colleges were converted into universities, and the founding of new universities was encouraged.

- Introduction of Graduation quota system:

Graduating class size was regulated to maintain education quality while the student population was dramatically increasing. Starting with the freshman class of 1981, the existing student population system was abolished and students were selected by adding a certain number of new students to the graduating class population. This system operated for a number of years but then was abolished because students would often be forced out of school without having finished their studies.

- Full day lecture system at universities:

The full day lecture system was adopted so that limited education facilities

and manpower could be used to the fullest amid a dramatic increase in the student population. Although Korea's universities lacked facilities and faculty compared to their foreign counterparts, the usage rate of the facilities was much lower in Korea than abroad. In practice however, this system was not received enthusiastically and had little effect.

- Expansion of KNOU:

To dramatically increase tertiary education opportunities the KNOU, which had only offered two year programs, began offering bachelor's degree programs, expanded their two year programs, and expanded its student population.

- Extended programs at education universities:

To improve teacher training, two year programs at education universities were extended to four years.

The July 30 education reforms aimed to resolve the problem of excessive private tutoring by expanding university education opportunities without lowering the quality of education. Measures to expand university education opportunities, develop the KNOU, and extend university programs are seen to have had positive effects. However, the reforms were criticized for suddenly expanding the student population while facilities and teachers were lacking, which resulted in worsened education conditions, and the installation of a graduating class size system that caused some students to forcibly terminate their studies.

c) Education Reform Deliberation Committee's Tertiary Education Reform Measures

During the Fifth Republic, an education reform body was established directly under the president to pursue more systematic and comprehensive education reform. The Education Reform Deliberation Committee was established in March 1985 directly under the president and existed until December 1987. It chose 42 policy tasks, after research and deliberation, proposed "ten education reform measures." The Education Reform Deliberation Committee defined the Korean of the 21st century as being

independent, creative, and ethical, and promoted efficiency and diversity in education. The Education Reform Deliberation Committee's reforms for the tertiary education sector include the following.

- Separate admission system for each university
- Expansion and modernization of university libraries
- Specialization and professionalization of teacher training, introduction of professor pension system and abolition of professor rehiring system
- Expansion of basic science research at universities and graduate schools
- Promotion of efficient university education: Division and specialization of university functions, selective fostering of graduate school-focused universities, introduction of university evaluation recognition system, reducing student-teacher ratio to 15, strengthening research support system, strengthening provincial research and fostering provincial experts.

It is significant that the Education Reform Deliberation Committee was founded directly under the president at a time when education reforms were being implemented in other countries such as the USA and Japan.⁷⁾ While the education reforms were being discussed, leaders from all areas of society participated, and socioeconomic support measures were created at an inter-ministry level, improving the possibility that the reforms would be enacted. Among the tertiary education reform proposals forwarded by the Education Reform Deliberation Committee, the installation of teacher funded scholarships, implementation of a university evaluation recognition system, introduction of a pension system for professors, revision of the university entrance system, and liberalization of student payments were adopted as education policies.

7) In the USA, President Reagan implemented education reform after the "Crisis of the Nation" report was released in 1983, and in Japan, Prime Minister Nakasone created a temporary Education Deliberation Committee in 1984 to implement education reform to develop away from education based on imitation.

d) Education Policy Consulting Committee's Tertiary Education Reform Measures

During the Sixth Republic, the Education Policy Consulting Committee was founded directly under the president and it continued the reforms started by the Education Reform Deliberation Committee. The Education Policy Audit Committee was created in February 1989 and operated for four years until February 1993. During this time, the committee deliberated and reported 36 policy tasks, and its activities regarding tertiary education are as follows.

- Measures to recognize degrees earned through independent study: Recognizing degrees earned by taking an exam after independent study, providing various courses and procedures for independent students, installing degree management organizations, promoting and installing ways to recognize degrees through inter-ministry social/economic/education measures, phased introduction of measures and revision of laws to minimize trial and error
- Comprehensive measures for elementary and middle school teachers: Choosing suitable teachers based on principal's recommendation and comprehensive methods, improving professionalism of teacher training, reducing discriminatory hiring between graduates of national and private teacher's universities, implementing hiring system based on open screening, introducing student teacher system, encouraging on the job teacher training, improving teacher hiring system, benefits, and welfare (special law introduced to improve teacher treatment), introduction/operation of teacher education evaluation recognition system
- Measures to improve university education: Diversification and specialization of universities, creation of a "university education committee," rationalization of approval for university establishment and phased liberalization of student population, improvement of university admission system, introduction of university evaluation approval system, invigorating research at universities and expanding finances, turning national universities into special corporations

- Measures to distribute tertiary education institutions: Expanded creation of open universities behind industrial areas or nearby cities, creating “affiliated junior colleges” near industrial areas, establishing at least one university and junior college per residential area, establishing tertiary education institution near planned new-industry promotion areas, revising the number of higher education institutions by type and student populations, rationalizing establishment approval policy for tertiary education institutions, adding graduate schools to leading research centers, creating graduate school-centered universities in each area, restricting the creation of national universities, encouraging the foundation of city/provincial universities

The Education Policy Audit Committee was a bridge between the Education Reform Deliberation Committee and the government of the Sixth Republic. Although the Education Policy Audit Committee introduced many new policies, some policies were implementations of proposals by the Education Reform Deliberation Committee. The tertiary education reforms implemented by the Education Policy Audit Committee include the ending of discriminatory hiring between graduates of national and private teacher’s universities, installing university education deliberation committee, creating university establishment preview system, and creating system for independent students to earn degrees.

e) Education Reform Committee’s Tertiary Education Reform Measures

In February 1994, the government created the Education Reform Committee directly under presidential authority to conduct education reform in an era of information and globalization. The committee’s reform approach could be described as liberalization, diversification, and specialization. Until then, university establishment, student selection, operation of the education curriculum, professor personnel management system, and budget operation, etc., had been strictly controlled by government laws and regulations, but this was not successful in producing a quality education system that could improve national competitiveness. The Education Reform Committee increased the priority of tertiary education in its reform efforts and proposed around thirty reforms in this area in four stages.

Focusing on tasks currently being implemented, the reforms are as follows.

- Expanded university operation focused on students: Legal basis is created for time-based registration system which allows students to register on a time basis according to their needs and complete a regular education course, major change and transfer systems are expanded so students can select majors according to their talents and disposition
- Expanded diversification and specialization of universities: Introduction of guidelines for university establishment, founding of stand-alone specialized graduate schools to train experts, evaluation and support for measures to diversify and specialize universities at each institution
- Adoption of support system for individual efforts by universities: Universities nationwide are evaluated for their progress in 40 reform measures and winners are awarded 30 billion won in support, education quality and diversity is improved through constructive competition, support system for individual efforts at differentiation is created
- Liberalization of university student population: individual universities can freely adjust student population by creating/expanding departments, etc., within the constraints defined by the Ministry of Education, system allowing the seven best regional private universities to freely adjust student population is adopted
- Globalization/modernization of university education/research: Since 1996, to globalize the level of Korea's university research, 2.5 billion won was spent on joint research with foreign scholars, 400 million won was spent on publishing in leading international journals, 15 billion won was spent on modernizing equipment at science and technology research centers, a cutting-edge academic information center was built to manage Korean/foreign academic information so it can be used for research, and a multimedia education support center was established.

- Expanded opportunities for continuing vocational and technical education: To expand opportunities for tertiary education for students receiving job training, special student system was expanded at open university, and university admissions were made easier for employees of industrial companies

<Table 22> Education Reform Committee's Tertiary Education Reforms

Category	Main Tasks	Detailed Tasks
Education Reform Committee First Report (May 31, 1995)	○ Create institutional basis for open education system	<ul style="list-style-type: none"> • introducing credit bank system • implementing time-based student registration • establishing National Multimedia Education Support Center*
	○ Diversification and specialization of universities	<ul style="list-style-type: none"> • diversifying and specializing university model • establishing special graduate schools • liberalization of university creation, student population, and course operation • upgrading of academic research (strengthening links between university evaluation and financial support) • internationalizing university education
	○ More humane university admission system	<ul style="list-style-type: none"> • increasing importance of high school record in university admissions • scholastic aptitude test based on high school curriculum
Second Report (Feb 9, 1996)	○ Creating education system for new industries	<ul style="list-style-type: none"> • invigorating job training at junior colleges, open university, and technical colleges • introducing new university* • introducing degree system in professional job sector*
	○ Introducing specialized graduate school system	<ul style="list-style-type: none"> • specialized medical schools introduced • specialized grad schools for clergy introduced* • specialized law schools introduced
	○ Tertiary education law drafted as education related legal system is revised	<ul style="list-style-type: none"> • guarantee of diverse university models • constitutions for each university • guidelines for university creation
Third Report (Aug 20, 1996)	○ Blueprint and reform approach for education informatization	<ul style="list-style-type: none"> • operating 21st century cutting-edge schools and virtual university • creating certification system, etc. for information achievements*
Fourth Report (June 2, 1997)	○ Supporting efficiency and regional dispersion of tertiary education	<ul style="list-style-type: none"> • fostering research centered universities • regionalization of education and training • diversification of university evaluation standards and models • increasing support for junior colleges
	○ Change in semester system	<ul style="list-style-type: none"> • Change to September semester system, provision of guidance counseling, etc.*
	○ Fostering regional universities and university admission change method installed	

Note: * Indicates measures that were partially implemented or not yet implemented.

The basic direction of the Education Reform Committee's tertiary education reforms was very different from the reforms of the past. Until then, the focus had been on meeting national demand for education and the public aspect of education, but the Education Reform Committee's priority was on the ease and diversity of education. Thus, the supplier-based expedient education of the past is being replaced by student-focused, differentiated education; university administration based on uniform, government led regulations and control is shifting to administration that emphasized the freedom and duties of each university; and uniformity is being replaced by diversity.

The Education Reform Committee's reforms can be seen as positive in their comprehensiveness and diversity, and willingness to liberalize universities, as well as their emphasis on competitiveness to respond to an information society. There are some criticisms that the reforms were top down in their introduction and implementation, and the theoretical/logical validity of the reform tasks were not studied sufficiently. The Education Reform Committee's tertiary education reforms are still being continued as core tasks by the Ministry of Education.

f) Measures to Strengthen University Competitiveness

For half a century after Korea's liberation, Korean universities could rely on a "seller's market" in education as the number of elementary and middle school students constantly increased. As a result, all universities attempted to expand in size and become comprehensive universities that offered all colleges and departments.

Even after statistical forecasts that the number of high school graduates would begin to decrease in the early 2000s, the trend of establishing new universities, expanding university size, and offer "department store" type selection of majors continued. As demand for university admission began to decrease in 2002, universities faced a crisis. At first, it was only junior colleges in the provinces that could not fill their classes, but this trend was gradually seen in four year universities and spread north towards Seoul. In this way, Korean universities failed to become specialized, were criticized

by companies for not training graduates who are suited to industrial demand, and were ranked low in competitiveness by foreign ratings organizations.

As a result, the Ministry of Education, Science, and Technology saw a keen need for strengthening the competitiveness of Korea's universities, and in November 2003, introduced the "Measures to improve University Competitiveness for a Forward Leap in the Era of 20,000 Dollar per-capita GDP." The core tasks of these measures were: ① enhance the independent capability of universities, ② improve education and research through competition, and ③ overhaul the policies on university application.

The first task of "enhancing the independent capability of universities" involved expanding the autonomy and duties of universities and boldly implementing structural reform. The expansion of autonomy and duties included regulatory reform, autonomous degree administration, innovation of evaluation systems, and creation of a studious environment, and the structural reform included creating an association of national universities, voluntary mergers and closing of private universities, class size reductions and removal of departments, and increased democratization/efficiency of university management.

The second task of "improving education and research through competition" aimed to improve university research capability, foster regional universities, provide student-focused education, and train expert talent. Measures to improve research included the fostering of research universities, introduction of the "5 year basic scholarship development project," reform of university research support methods, and acquisition of leading technical researchers. Measures to foster regional universities included the introduction of the "project to strengthen innovative capacity at regional universities," a core strategy in balanced national development. Measures to provide student-focused education and train expert talent included invigoration of specialized graduate schools to meet demand for highly trained experts, improving the practical applicability of education, increased activity of the "industry-academy cooperation group," encouragement of various business-academia projects, and

globalization/informatization of university education.

The third task, “overhauling policies on university application,” involved policies that were based on the type and characteristics of universities, and included selective and focused investment such as inducement of autonomous university format changes, administrative/financial support according to university format, support according to “selection and focus,” and decisive expansion of the tertiary education budget.

These “measures to strengthen university competitiveness” became the master plan for university autonomy, structural reform, and specialization policies. The university reform measures pursued since 2000 have been the manifestations of these “measures to strengthen university competitiveness.” Below, we will examine the main reforms adopted to strengthen university competitiveness, including university autonomy, university structural reform, university specialization, Brain Korea 21, and NURI.

iv. University Autonomy Policy

Because Korean tertiary education policy had been centrally controlled for such a long period, the education system and policy implementation process contained many regulatory factors. In the mid 1990s, the government started a regulatory reform effort in all administrative sectors including education. Measures to loosen education regulations were introduced as part of the May 31, 1995 education reform measures, and the “Education Regulatory Reform Committee” was created to oversee the implementation of these measures.

During the Kim Dae-Jung presidency, the Ministry of Education introduced the “Comprehensive Plan for Promoting Education Liberalization” in 2000, separately from the measures to loosen education regulations. Within this plan were plans for liberalization of university degrees, university/graduate school student populations, instructor policies, private universities, and corporations. Out of 80 proposals, 44 proposals

were included in the liberalization plan, and only 25 of them actually went into effect (Nam-Goong Geun et al. 2005).

During the Noh Moo-Hyun presidency, the Ministry of Education created the “University Autonomy Promotion Committee” in March 2004 to expand university regulatory reform and autonomy (shortly after, this committee was even given authority to deliberate on restructuring tasks and was renamed “University Autonomy/Structural Reform Committee”). The Ministry of Education conducted a demand survey for university autonomy and used the results as the focus of its work, creating a liberalization plan up to 2007. The university autonomy plan had the following basic principles (Ministry of Education, 2004).

Liberalization of university student selection systems emphasized the autonomy and duties of universities while ensuring the normalization of education and fairness of the application process by keeping “minimum restrictions” (essay and written answer exams, high school record system, admission-by-contribution system). Student population policies would be determined under the principles of university autonomy and responsibility, but the government would adjust the student populations in fields that have special purposes or public importance. For private universities and corporations, the core operating regulations would be upheld, but the board of directors would be given more autonomy.

In March 2007, the Ministry of Education created the “University Autonomy Committee” and began university autonomy efforts. This was aimed at improving university competitiveness by allowing universities to voluntarily develop themselves in a creative way. Although liberalization efforts had been continuing for years, the actual results had been limited. In particular, it was indicated that universities could not respond to social changes due to excessive regulations.

The basic direction of the plan was as follows. First, tertiary education institutions should be liberalized but this would be linked to fulfillment of duties. Thus, gradual liberalization would be implemented with linkages to information disclosure systems, corporatization of national universities, and

establishment of tertiary education evaluation bodies, etc. Second, tasks that were formerly regulated should be liberalized, and evaluation should be strengthened. Therefore, follow-up inspection and evaluation of liberalization efforts would be strengthened (evaluation through tertiary education evaluation group, etc.). Third, minimum regulations should be kept to ensure the public's right to education or protect social unity. Regulations on universities in Seoul to promote balanced regional development would be maintained. Regulations that conflict with each other due to the characteristics of universities should be discussed by the parties involved and gradually adjusted. As a condition for participating in the government's various financial support projects, the responsibilities of universities would be maintained or supplemented.

In preparing for its university autonomy efforts, the Ministry of Education conducted demand surveys at universities, the proposals from the surveys underwent deliberation by the University Autonomy Committee and the "University Autonomy Promotion Plan" was announced in July 2007. 122 tasks were collected from the surveys, 51 were excluded as not being regulations, and the remaining 71 regulatory proposals were evaluated. 31 of these proposals were selected as liberalization tasks and a promotion schedule was drafted. The main contents of the promotion schedule included "reduction of approvals for bond issues by private universities," "switching from approval system to reporting system when re-hiring executives," "approving establishment of university company outside of school property," etc. By year, 12 university autonomy tasks would be pursued in 2007, 10 would be executed in 2008, and 11 would be implemented in 2009.

The Lee Myung-Bak government has been more proactive than any previous government in regulatory reform and liberalization policies. First, the "three phase liberalization measures for university admissions" was announced by the presidential undertaking committee. In the first stage of the university autonomy measures, university admissions tasks, which had been handled by the Ministry of Education, Science, and Technology, were transferred to a cooperative of universities. In addition, the "plan for the first stage of university autonomy" and "draft plan for the second stage of

university autonomy” were announced on April 16 and September 12, 2008 respectively.

The “three phase liberalization measures for university admissions” announced by the presidential undertaking committee in January 22, 2008 consists of the following. In the first phase, the chaos regarding the scholastic ability test ranking system was quickly resolved by providing standard scores and percentiles in addition to the rank on the exam, and the student archive and weighting of the scholastic ability test would be liberalized. In the second phase, the number of subjects included in the test would be reduced. In the third phase, all items related to admissions will be decided by the universities, resulting in total autonomy. The first phase of the measures involves the government’s delegation of various tasks related to university admissions to the Korea Council for University Education and the Korean Council for College Education (“councils”). Therefore, universities will have much more autonomy in all areas including admissions, and even the formerly-taboo Three Prohibitions Policy(TPP) (separate main exams, high school record system, and admission-by-contribution) are expected to be discussed.

On April 16, 2008, the “plan for the first stage of university autonomy” was announced. Its strategy was to liberalize starting with the tasks that could be addressed immediately. The selection of tasks was based on a conference of university presidents held in April 2008. As a result, 12 tasks were announced for the first stage including liberalizing the operation of national universities within budget constraints, abolishing regulations obligating teachers to belong to an organization, and abolishing the school regulation support system.

The “draft plan for the second stage of university autonomy” was announced on September 12, 2008. This plan was created after taking demand surveys of universities and university associations. The basic direction of this plan was to promote globalization of tertiary education and reform regulations to allow universities to respond to a changing society, while removing regulations that create unnecessary administrative work or that were monolithic in nature, and revising regulations that are hard to

enforce or difficult to maintain consistently. This plan included 45 tasks for university autonomy; according to the plan, foreign educational institutions in free economic zones or the Jeju International City would be subject to the accounting standards of their own countries, and part of school operating costs could be sent to the overseas school corporation (Ministry of Education, Science, and Technology, September 12, 2008).

As examined above, university autonomy policies are expected to accelerate under the Lee Myung-Bak government. The “three phase liberalization measures for university admissions” have already been announced, and some of these policies are already being implemented. In addition, the formerly avoided Three Prohibitions Policy(TPP) are also expected to be reexamined.

v. University Structural Reform Policy

In the 2000s, as demand for university admission plummeted, many universities were unable to fill their student quotas and some were in danger of closing due to financial difficulties. A consensus began to form regarding the crisis facing universities, and demands for innovation such as regulatory reform increased. In response, the Ministry of Education announced the “university structural reform measures to improve competitiveness” in December 2004 through the University Autonomy Structural Reform Committee. These measures attempted to not only decrease the size of universities, but also improve their quality by restructuring universities by linking them to local industries. To achieve this, university information will be disclosed, evaluation and financial support will be ranked, and university autonomy policies will be continued so that universities can enact structural reform on their own.

The main structural reform tasks included in these measures are i. disclosing university information, ii. improving education conditions and promoting differentiation, iii. structural reform of national universities, iv. support for structural reform of private universities, and v. structural reform of graduate schools.

Disclosing university information includes the adoption of the “university information disclosure system” in which information is revealed to prospective students. This is intended to affect school selection and evaluation and stimulate competition between universities.

To improve education conditions and promote differentiation include reducing the freshman class at national universities by 15% by 2009 so that the student-teacher ratio improves to 21, and improving teacher hiring standards for private universities every year. According to this plan, regular universities (research focused) would have a teacher hiring rate of 65% by 2009.

Structural reform of national universities includes the strengthening of administrative/financial support to universities to induce amalgamation of universities⁸⁾ and create an association of universities. Also included were measures to revise the operation of national universities such as combining regular accounting and organization planning accounting at national universities, legislating board of trustees, professors’ associations, students’ associations, and employees’ associations, and improving the methods of selecting university presidents and deans.

Measures for structural reform of private universities included inducing structural reform such as amalgamation, merger, and acquisition among universities, and sending audit teams to universities in crisis. In addition, the efficient use of private university assets was supported by allowing the conversion of excessive educational assets into business assets, etc, and if a university closes due to difficulties, part of the contribution fund will be returned to the contributors.

Structural reform of graduate schools included an autonomous certification system for each area of study, the creation of a graduate school evaluation system linked to financial support, and the closing of smaller

8) The amalgamation models include ① combining of universities, ② combining of university and junior college, ③ combining of university and industrial university, and ④ combining of university and teacher’s university.

graduate schools in similar fields to reduce student population and downscale the size of graduate schools.

As a result of these university structural reforms, two national universities were merged into one in 2004, ten national universities were combined into five in 2005, 2 national universities were merged into one in 2006, and the student population was reduced by 7,236. To support these university amalgamations, the Ministry of Education spent 150 billion won from 2005 to 2008. In the private university sector, 12 universities were merged into 6, and the student population was reduced by 7,735. In addition, during 2005 to 2008, 7 to 10 billion won was given to each university that implemented structural reforms like merging of similar departments or revising the degree system.

vi. University Specialization Policy

Korea's university specialization efforts began in the 1960s and 70s. During this period, the government strictly controlled the student population and linked national universities to strategic industries, e.g. mechanical engineering at Busan University, electronic engineering at Kyungbook University, and chemical engineering at Jeonnam University. In the 1980s however, the student population increased dramatically and university specialization was weakened.

Universities expanded their departments and colleges, and student populations were expanded, with every university aiming to become a giant comprehensive university. However, with the decrease in high school graduates in the 2000s, the government and universities decided that specialization was the way to increase competitiveness. Even before this, the Education Reform Committee had proposed "diversification and specialization of universities" as one of its reform tasks, with various types of institutions being proposed such as job-oriented undergraduate-based, job-oriented graduate school-based, academic-oriented undergraduate-based, and academic-oriented graduate school-based universities.

Similarly, the Ministry of Education proposed that six categories of university be created according to whether the institution is research-oriented, education-oriented, or job-oriented, and whether it is based in Seoul or the provinces (Kim Jin-Pyo, 2005). In 2006, Samsung Economic Research Institute proposed eight strategic categories of university including research or education (by purpose), comprehensive or specialized (by academic field), and national and regional (by regional scope). However, because university specialization requires the redistribution of resources within schools and a concentration of resources in the area of specialization, it is difficult to achieve without amicable discussion within schools and strong leadership. The government needs to redefine its relationship with universities and examine specialization strategies within and among universities so that agreements can be reached between university administrators and staff.

In the government's "measures to strengthen university competitiveness" and "measures to structurally reform universities" released in 2003, university specialization was explored as a way to avoid sprawling department offerings and chaotic management, and structural reform was intended to promote specialization. This reflects the close relation between specialization and university competitiveness, structural reform, and liberalization. For example, the BK 21 project and specialized graduate schools were aimed at fostering expert professionals, NURI and the capital region specialization project were intended to train technical manpower, and the specialization of junior colleges was implemented to develop practical technical workers, indicating that these reform projects are closely related to university specialization. Therefore, the various projects since the mid 1990s that evaluated reform results and provided support to outstanding universities (BK 21, NURI, university specialization support project, university structural reform project, industry-academy cooperation projects, regional innovation and specialization support projects, and junior college specialization support projects, etc.) has university specialization as their core.

vii. Private University Policies

Since liberation, private institutions have played an extremely important role in the growth of Korean tertiary education. Because the country's finances at the time could not meet the rapidly growing demand for education, and national and public universities could not handle all the prospective students, the government encouraged the many philanthropists who wished to establish private universities. As a result, private institutions now account for most of Korea's educational institutions, with almost all junior colleges and more than three quarters of universities being privately founded and operated.

However, private institutions have undergone numerous ordeals in their development related to their philosophy of independence and public good. The changes in private school policy have closely mirrored the changes in education policy. Private schools account for a much of Korea's education system, and due to their emphasis on public good, they have been regarded as being similar to public schools and have been a part of the history of education policy. The history of private schools can be encapsulated as follows: the "free laissez-faire period" from 1945 to 1950, when private universities generally expanded and aftereffects arose later, the "private school restriction period" in the 1960s and 70s during which the many substandard private schools were repaired and corruption was strictly controlled, the "private school restriction and aid period" in the 1980s when the government still controlled private schools but also supported them, and the "liberalization period" since the 1990s when restrictions were loosened and the government provided indirect guidance through evaluations, etc. The system that had the greatest effect on private schools was the "Private School Law."

During the 1950s when a boom in private school establishment was occurring, some private institutions were run chaotically with only personal profit in mind, which aroused conflict and disharmony in the institutions and attracted criticism from society. To reduce corruption and conflict in private universities, the military government drafted the "private school law" (law no. 1362, June 26, 1963) in 1963.

The private school law stated that private universities should be both independent and public-minded, so that these institutions could develop in an upstanding way. In reality however, the law placed a greater emphasis on public-mindedness. As a result, the “private school law” included a broad range of government controls on private schools, including: monitoring of schools by the monitoring office, mandatory reporting of for-profit businesses by school corporations, mandatory approval of school presidents by the monitoring office, and even prison terms for school presidents or managers who violated regulations.

In the early 1980s, efforts were made to reform corruption and irrationality in private schools by clarifying the rights and duties of the school founder and school president through measures such as preventing the founder from being appointed school president, and granting the school president authority to appoint instructors, etc. Government hoped that this would prevent the founder from intervening in an unjustified way in school administration (Private School Law drafted in February 28, 1981). However, as school founders and school corporations became powerless, the syndrome of a dysfunctional “ownerless private schools” appeared, and the policy direction was shifted to liberalization after the mid 1980s.

In the late 1980s, as the democratization movement spread through the country, there were stronger demands for university autonomy, and this developed into a demand for private school autonomy. As a result, the regulation preventing the chairman of a school corporation from becoming school president was abolished, and the authority to hire professors was returned from the school president to the corporation (Private School Law revised on April 7, 1990). In this process, numerous debates broke out between the political parties that supported private school independence and public-mindedness versus various interest groups. As a result, prohibitions on the holding of more than one position were loosened, e.g. the open director system was introduced for one-fourth of a school corporation’s directors, and a school corporation chairman was allowed to be the president of another school corporation’s school (Private School Law revised on December 29, 2005 and July 27, 2007).

Since its drafting in 1963, the Private School Law was revised more than 40 times, reflecting the many debates and changes in private school policy. Despite the changes, the regulatory nature of the law remains unchanged, and therefore, it is seen as a law aiming to control and monitor private schools so they meet their social duties, rather than to support or nurture them.

viii. Tuition Policies⁹⁾

To summarize university tuition policies since liberation, the government's strict control of private university payment levels gradually shifted to more liberalizing policies (payments for national and public universities are decided by the government, so they are not discussed here). The history of changes in university tuition policies over the last 60 years is divided into four stages (Yoon Jeong-Il, 1996). The first stage, lasting until 1960, was the payment restriction period, the second stage from 1961 to 1980 was the period of loosening restrictions, the third stage from 1981 to 1988 was the payment liberalization promotion stage, and the fourth stage since 1989 is the payment liberalization stage.

a) Payment Restriction Period (1945-1960)

At a time when government support for universities was meager and school corporations lacked resources to support school budgets, universities had to rely on student payments for income. However, in consideration of the financial difficulties of students and their parents, the government set a limit for payment amounts and applied a restrictive policy. As a result, universities couldn't raise payment amounts and they remained at relatively low levels.

9) This section referred to the content of Yoon Jeong-Il et al. (1996) Exploring Korean Education Policy (Seoul: Education Science Publishing)

b) Period of Loosening Restrictions (1961-1980)

During the 1960s and 70s, university policies were under strict government control and schools were not allowed to increase their student populations, so private universities suffered great financial difficulties. To resolve this issue, the government abolished the payment limit (1965) and PTA fee payment limit (1969) for private universities. As payment limits were abolished, private universities' income from payments increased dramatically. However, because payment increases gradually exceeded inflation, the government reinstalled the policy of restricting payment increases in 1978.

c) Payment Liberalization Promotion Stage (1981-1988)

In the early 1980s, university student populations were drastically increased as part of the measures to resolve excess private tutoring, but as demand for education facilities skyrocketed, the limit for payment increases at private universities was abolished in 1981. On the other hand, more scholarships and tuition discounts were provided to lower income students. However, the abolition of payment limits led to tuition increases at all universities and in 1982 the government proposed an ideal level for payments and introduced it as a policy. As a result, the level of payments were usually low in the 1980s.

d) Payment Liberalization Stage (1989-Present)

During the liberalization trend of the late 1980s, university tuition policies were left in the hands of the universities. However, this resulted in fierce conflict between universities and students who opposed payment hikes. The government set a ceiling on payment increases to prevent inflation from rising. In 2003, with new university autonomy policies being implemented, the government allowed universities to independently set the payment amount within reasonable limits.

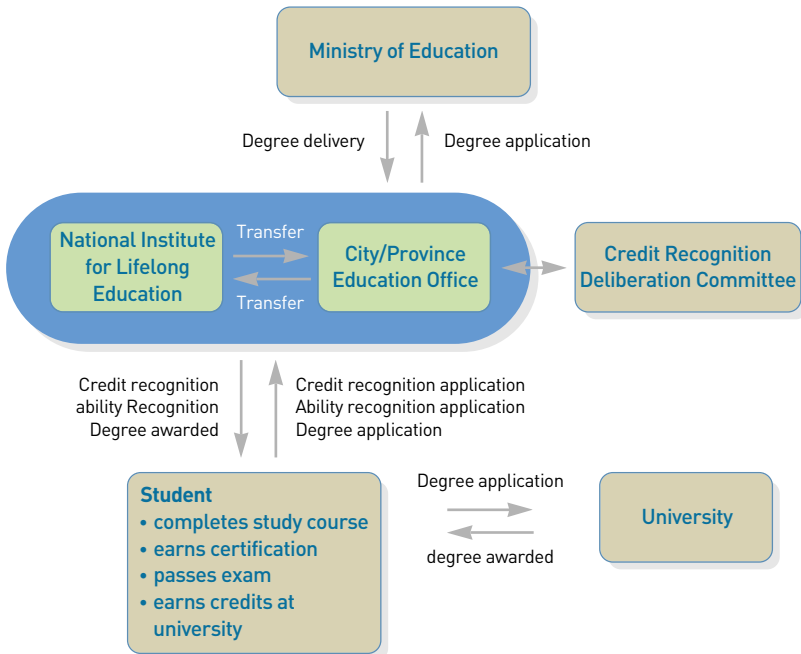
B. SUCCESSFUL TERTIARY EDUCATION CASES

i. Open Tertiary Education System: Credit Bank System, KNOU

a) Credit Bank System

The credit bank system is based on the “law regarding credit recognition” (no. 5275) and awards credit for various forms of learning outside of school. By allowing participants to accumulate credits toward a degree, the system strives for a society of open education and lifetime learning. The legal basis for the credit bank system created when the “law regarding credit recognition” (no.5275) was drafted/announced on January 13, 1997, and the system began to operate in 1998.

[Figure 2] Credit Bank Operation



Source: Bae Eun-Soon et al. (2004) “Mid and Long Term Development Measures for Credit Bank System.”

The credit bank system operates as follows. First, the education institution and course of study is evaluated and approved by the organization operating the credit bank system. Then the student undergoes education at the approved educational institution and receives credit accordingly. Credits are recognized not only for those who completed approved learning courses, but also those who finished courses at schools approved by the President (military colleges, police colleges, tax universities, KAIST, technical universities), those who completed time-based registration classes, those awarded national or civilian licenses according to the basic law on licenses, and those who passed exams for a degree through self-study. To receive recognition for scholastic ability, a student had to earn 140 credits to be recognized as a university graduate or 80 credits to be recognized as a junior college graduate. In addition, to receive a junior college degree, a student must have the scholastic ability of a junior college graduate and have completed the general and specific courses determined in the standard education course for his major, and to receive a university degree, a student must also submit a thesis or a working model of sufficient quality.

In 1998 during the first year of the credit bank system, 61 approved institutions offered 274 courses, with 18 majors being offered for degrees and 23 majors offered for specialized degrees. Two years later, the first diploma award ceremony was opened, producing 111 graduates and 539 specialized graduates. Since then the system has grown rapidly and in the March 2008 evaluation and approval, 471 educational institutions were approved along with 21,153 courses.

<Table 23> Number of Educational Institutions and Students in the Credit Bank System (2008)

Educational Institution	Institutions	Approved courses	Students
Continuing education centers at universities	223	12,843	334,572
Major's accelerated and special course	34	1,146	13,780
Private institutions	67	1,649	91,352
Job training institutions	68	3,417	151,822
Government related institutions	32	565	73,864
Media related institutions	1	21	4,528
Advanced technical schools	4	391	12,133

Educational Institution	Institutions	Approved courses	Students
Special schools	4	115	906
Continuing education facilities	15	631	26,818
Intangible cultural assets	15	269	1,152
Distance learning	8	106	72,109
Total	471	21,153	783,036

Source: Credit bank system internal materials.

Among the 471 approved educational institutions participating in the credit bank system, 223 or almost half are continuing education centers at universities, and the rest include job training institutes, and technical, art/athletic, social, or language institutes. In 2008, 780,000 students were registered at these educational institutions to earn credits. From 1999 to 2008, a total of 100,699 students were awarded degrees by the Minister of Education, with 34,592 students receiving specialized degrees and 66,107 students receiving general degrees. In addition, 7,456 students received degrees from the president of their respective universities through the credit bank system, with 1,713 specialized degrees and 5,743 general degrees awarded.

Because the credit bank system allows people who didn't have the opportunity to study at regular schools to earn credits towards a degree for their experience through various methods, it is praised in the continuing education field as one of the best education methods. Through the credit bank system, the monopoly position of tertiary education institutions was expanded to private institutes or job training centers, etc, putting students who gained experience outside of the regular education system on an equal footing as those who completed the standard system.

b) KNOU

With the spread of radio and television, efforts have been made to use these media in education. As part of these efforts, the Korea National Open University establishment law (presidential law no. 6,106) was introduced in

March 1972, and a two-year junior college program at the KNOU was founded as an adjunct to Seoul National University (Ministry of Education, 1998). The KNOU was established to provide education opportunities to people who completed or stopped their education and wish to continue it for academic or vocational improvement. The KNOU offers university or junior college level education at low prices through broadcasts, communication, and classroom lectures, and is ideal for people who could not receive an education due to economic or geographic conditions, or people who are older than the average student. KNOU also perfectly fits the philosophy of lifelong education.

In 1981, based on the July 30 1980 Education Reform Measures, a degree program was created at KNOU, and the student population of the 2 year program was greatly increased. In 1982, KNOU separated from SNU and become a national university. KNOU has grown from five departments and 12,000 students in 1972 to a mega university in 2008 with four colleges (humanities, science, social science, and education), 26 departments, 270,000 students (180,000 current students and 90,000 students on leave), and 400,000 graduates.

More than 70% of students are working, and these students can receive an education at the desired times and places while working. Students attend about three classroom lectures a semester on weekends or in the evenings, and study independently through TV lectures and learning on demand systems. In this way, the KNOU, by providing university or junior college level learning opportunities through expedient and effective methods to people who couldn't receive an education for whatever reason, has improved the education level of the public and has become a means of producing the experts needed for national development.

ii. Nationwide University Reform: BK 21, NURI, Industry-Academy Cooperation Projects

a) BK 21 Project

The Brain Korea 21 project was started in 1999 to develop world-class graduate schools and foster research personnel. Unlike regular research support that focused on support for research papers and research tasks, BK 21 supports research personnel such as masters and PhD students, post doctorate researchers, and visiting professors, and supports project teams at graduate school departments to increase overall education capacity (Korea Research Foundation, 2007). BK 21's activities include creating world class graduate schools, setting the foundation for graduate school development, fostering regional universities, and improving research staff at graduate schools. From 1999 to 2005, the government spent 1.34 trillion won for these purposes.

This project was the first to apply the “choice and concentration principle” to tertiary education, created an environment supportive of research at universities, and has increased university research output while fostering outstanding research personnel. As a result, the number of SCI level papers published in Korea rose from 9,854 in 1998 (18th in the world) to 23,297 in 2006 (13th in world), and the percentage of Korean SCI level papers rose from 1.13% to 2.05% in the same period. In addition, the number of SCI level papers published by professors who took part in BK 21 science projects doubled during the project period, while the student-teacher ratio has improved due to the introduction of researchers such as contract professors and post-doctorates.

The second stage of BK 21 will be pursued from 2006 to 2012. The second stage will use the research infrastructure created in the first stage to establish the research focused university system and foster expert personnel in basic and core technology and new growth engines that can create national wealth (Korea Research Foundation, 2007). In addition, support based on selection and focus will be expanded for science and technology that will lead national development, and initiatives will include support for

masters' and PhD students to foster expert personnel, support for international exchange and cooperation, and support for development of innovative education programs. The second stage of BK 21 will cost 290 billion won annually, and about 2.3 trillion won is expected to be invested over seven years, a 50% increase from stage one of the project.

An evaluation in 2006 found that the R&D costs and various support costs ordered by the project teams totaled 3.6 times the amount provided by BK 21 to support projects, showing that BK 21 was used as a means of attracting external research projects (Korea Research Foundation, 2007). In addition, the number of Korean and international patent registrations increased greatly, and the project group's income from technology fees due to technology transfer in science and technology also increased dramatically.

b) NURI Project

The New University for Regional Innovation (NURI) project was initiated to strengthen the competitiveness of regional universities, contribute to regional development, and promote balanced national development. Through links between regional universities and local institutions such as local governments, companies, and research centers, NURI aimed to diversify and specialize regional universities, improve employment competitiveness of students of regional universities, and function as the nerve center for regional innovation and invigorate the role of regional universities.

From 2004 to 2008, the central government intends to invest 1.36 trillion won in this project, and local governments, businesses, and universities will also provide support. NURI operates in 13 regions throughout the country except for the capital region, and the universities in each region form project teams to pursue projects that are classified as being small, medium, or large scale depending on their purpose and cost. Large projects involving regional government and industry participation receive 3 to 5 billion won yearly, medium sized projects involving local governments or industries receive 1 to 3 billion won yearly, and small projects carried out by universities and at

least one external institution are given less than 1 billion won yearly. NURI focuses on programs to foster expert personnel in specialized fields, and trains mid and high level specialists and technical manpower who have theoretical and practical ability and creativity.

c) Industry-Academy Cooperation Projects

One of the government's core strategies for creating a knowledge-based economy and ensuring continued growth is industry-academy cooperation. Universities focus on fostering the experts and technology needed by businesses, while businesses hire graduates and adopt technology from universities, improve profitability, and reinvest in university R&D to create a synergy effect (Jang Keum-Young 2006). In 2003, the government created the "new vision and strategy for industry-academy cooperation" and proposed the basic direction for policy in this area which included ① creating a demand-focused personnel training system, ② stimulating technology innovation R&D and commercialization of technology, ③ expanding and applying technology through diverse technology transfer policies, ④ support for creation of innovative companies based in universities, corporations, or research centers. These plans were also reflected in the "second basic plan for development of national human resources (2006 to 2010)," the main contents of which included ① specialization for each university based on economic/social demands, ② stimulating industry-academy cooperation to improve practical relevance of university education, ③ using the industry-academy cooperation team as the core of industry-academy cooperation, and ④ creating a support system to invigorate industry-academy cooperation.

Industry-academy cooperation projects are being promoted not only by the Ministry of Education, Science, and Technology, but also through cooperation with numerous other ministries such as the Ministry of Knowledge Economy. The projects introduced by the MEST, include fostering of core universities for industry-academy cooperation, support for school companies, support for overseas internships at junior colleges, and the connect Korea project. The details of each project are examined below (Chae Jae-Eun, 2006).

Fostering core universities for industry-academy cooperation was done by selecting core universities in eight regions which would work with nearby corporations in technology development and guidance, creation and sharing of equipment, and education programs for corporations, etc. to foster experts needed in the region and create an independent regional innovation system. This project selected 13 universities (eight regular universities and five industrial universities) and ten junior colleges to provide support during the next five years (2005 to 2008 for junior colleges).

Support for school companies involved the manufacture and sale of products or services from a department. In this way, university technology was commercialized and experts with practical knowledge were trained. This project is currently being implemented in 50 schools throughout the country (universities, junior colleges, technical high schools).

Students at junior colleges are being sent on overseas internships to increase their global capabilities and increase their chances of being employed at foreign companies in Korea or in Korean companies overseas. Internships are being conducted with eight countries including the USA, Japan, and China.

Finally, the Connect Korea project invigorates technology transfer organizations at universities and research centers to transmit technology to the private sector and commercialize it. These are the various ways in which the government is promoting industry-academy cooperation.

With such an emphasis on industry-academy cooperation in recent years, the legal foundation for such projects is being established and universities are creating in-house organizations for these activities. To create a legal framework for industry-academy cooperation, the “industry education promotion law” drafted in 1963 to promote industrial education was revised in 2003 and renamed the “industry education promotion and industry-academy cooperation stimulation law.” This law allows the creation of “industry-academy cooperation teams” that can sign cooperation contracts, acquire and manage intellectual property rights, transfer technology, and conduct business tasks, etc., and “school companies” and “technology

holding companies” can be established to carry out tasks for the industry-academy cooperation teams. Article 24.1 of this law states that the head of the industry education institution can sign contracts for cooperation with national, local government, government organizations, and industries, and “industry-academy cooperation” in this law actually refers to “academia linked industry related cooperation.”

From 2003 when the legal basis for cooperation was established until 2006, 134 universities created industry-academy cooperation teams.¹⁰⁾ These teams are becoming the initiators of cooperation within universities. In 2003, universities (researchers) controlled 74.2% of research funds while industry-academy cooperation teams controlled only 25.8%. But in 2006, the teams controlled 90.2% of research funds and researchers controlled only 9.8%, reflecting the increasing influence of these teams (Korea Research Foundation, 2007).

The number of university patent applications in Korea increased from 1,832 in 2003 to 4,635 in 2006, and Korean patent registrations rose from 926 in 2003 to 2,973 in 2006. However, although foreign patent applications rose from 398 in 2003 to 731 in 2006, foreign patent registrations only rose slightly from 166 to 183 in the same period (Korea Research Foundation, 2007).

In 2008, the budget for industry-academy cooperation teams at tertiary education institutions was 4.81 trillion won, with 4.56 trillion allocated to universities and 3.33 allocated to junior colleges. 1.64 trillion, 86.1 billion, and 3.09 trillion won were allocated to national, public, and private universities respectively (Ministry of Education, Science, and Technology, Korea Educational Development Institute, 2008).

10) This survey was conducted by the Korea Research Foundation on 151 universities and 2 graduate school universities excluding universities specializing in education, art, theology, etc.

3

Implications
for Developing
Countries

3. IMPLICATIONS FOR DEVELOPING COUNTRIES

A. TERTIARY EDUCATION IN DEVELOPING COUNTRIES

The level of tertiary education in developing countries is far lower than the level of elementary and secondary education. Advanced countries had tertiary education rates of 55% and 65% in 1999 and 2004 respectively, but in developing countries these rates were 11% and 16%. Viewed in the perspective of the tertiary education development stage, advanced countries are already at the stage of universalization while developing countries are still in the elite stage. The results are similar for expected years of schooling. In advanced countries, the expected years of schooling was 15.7 in 2004, but in developing countries it was 10.1, or the first year of high school.

<Table 24> Tertiary Education Rate and Expected Years of Schooling

Country	Tertiary education rate		Expected years of schooling		
	1999	2004	1991	1999	2004
Advanced countries	55	65	14.1	15.8	15.7
Developing countries	11	16	8.3	9.1	10.1

Source: UNESCO(2007). Education For All Global Monitoring Report 2007.

Looking at the education levels of developing countries in the Asia-Pacific region, these countries had tertiary education rates that were similar to the world average, but their expected years of schooling were slightly longer than the world average, possibly reflecting the Asia region's emphasis on education.

<Table 25> Tertiary Education Enrollment Rate Enroument and Expected Years of Schooling for Countries in the Asia-Pacific

Country	Tertiary education rate		Expected years of schooling		
	1999	2004	1991	1999	2004
Cambodia	-	3	7.2	-	9.7
China	6	19	9.3	-	11.2
Indonesia	-	17	10.0	-	11.7
Japan	45	54	13.3	14.4	14.8
Laos	2	6	7.0	8.4	9.3
Malaysia	23	32	10.1	12.3	12.9
Myanmar	-	11	6.8	-	7.3
New Zealand	67	63	14.7	17.7	18.2
Philippines	29	29	10.8	11.6	12.0
Korea	66	90	13.6	15.0	16.2
Thailand	32	43	8.7	-	12.4
Vietnam	11	10	7.5	10.3	10.5

Source: UNESCO (2007) Education For All Global Monitoring Report 2007.

B. FACTORS HINDERING THE DEVELOPMENT OF TERTIARY EDUCATION IN DEVELOPING COUNTRIES

There are many plausible reasons why tertiary education in developing countries did not have much improvement. First, it is difficult for citizens of developing countries to receive tertiary education because of inadequate economic conditions. Students must pay tuition, etc. to receive tertiary education, but poorer families may need school aged youths to earn money. Such families do not have the financial wherewithal to bear the opportunity costs of education in addition to direct costs like tuition fees.

Second, education at the elementary and secondary levels, the preconditions for tertiary education, is not uniformly provided. A large number of people in developing countries generally do not have a great desire or high expectation for education. Therefore elementary and secondary education is not generalized in these countries. As a result, the demand for tertiary education is also lower.

Third, developing countries are sometimes unable to invest in tertiary education because of limited education funds. Most of the limited education budget is allocated to elementary and secondary education, and investment in tertiary education is meager. This is another reason why the number of tertiary institutions is relatively low.

Fourth, tertiary education is often regarded in developing countries as being reserved for the upper classes. Many elites in developing countries send their children abroad to receive better quality tertiary education. This trend can be seen in countries that were former colonies of western countries that had elite education systems in the past.

Finally, the above factors combine into a “vicious circle of poverty,” causing people to lose the incentive to achieve.

C. SWOT ANALYSIS OF KOREAN TERTIARY EDUCATION

If Korean tertiary education system is analyzed using the SWOT analysis method,¹¹⁾ we may be able to find a way to maximize the opportunities and strengths of the Korean tertiary education system while surmounting the threats and weaknesses.¹²⁾

i. Strengths

Korean tertiary education has plentiful human resources, talented students, and high desire for education. These factors have helped tertiary education in Korea to grow in a short period since liberation, giving Korea one of the world’s highest tertiary education rates.

11) SWOT analysis was originally used in the management sector to define a company’s strengths and weaknesses and the opportunities and threats in the company’s environment to create a marketing strategy.

12) The content of this section is based on Professor Chae Jae-Eun’s paper regarding “ODA and Korea’s Tertiary Education” (2006).

In recent years, the quality of Korean tertiary education has also improved. Due to projects such as BK 21, the quantity of research has rapidly increased and research quality is also improving. Although it is currently limited to certain fields such as life sciences, many PhDs from Korean universities are entering foreign universities or research centers. In addition, more Korean universities are receiving high ratings in international university ratings carried out by The Times, etc.

Also, the “internationalization of tertiary education” which has a real effect on ODA in the tertiary education sector, is showing rapid progress due to the attraction of foreign students and independent efforts by universities. As a result, foreign students and professors at Korean universities have noticeably increased, and more lectures are being given in English. These facts show that Korean universities are taking a great interest in and achieving marked progress in the globalization of tertiary education, which is a precondition for competitiveness in the present global era.

Furthermore, the government’s recent large scale tertiary education projects to improve competitiveness have shown relatively good results. “BK 21” focuses on fostering research personnel at tertiary institutions, while “NURI” aims at improving the quality of regional universities to achieve balanced regional development. Through financial support of universities, both projects have induced voluntary participation by universities and are receiving positive feedback.

Meanwhile, one tertiary education system that is receiving a great attention from developing countries is the credit bank system. The credit bank is the institutional basis for realizing lifelong education, and it fairly evaluates and certifies both classroom and practical learning. In addition, the KNOU model and the independent study system provide education opportunities to lower income, less educated persons, and can be useful models for developing countries that aim to expand their tertiary education opportunities in short period at low cost.

ii. Weaknesses

Compared to western countries with a long history of university education, Korean tertiary education has a short history, and still has many weaknesses. First, education conditions such as student-teacher ratio or facility area per student are still unfavorable. This was caused by the rapid quantitative growth of tertiary education during the last two or three decades, causing the authorities to focus on accommodating students while giving less attention to education conditions. Lack of investment in tertiary education can be seen as the root cause of this problem.

Although the standard of tertiary education research has improved recently, there are only very few Korean institutions that are included in the world's top 100 universities. And although recent improvements have been made in the attraction of foreign students, the basis for globalization at Korean universities remains weak, and Korea is less attractive as an international labor market than neighboring countries such as China or Japan.

Domestic evaluations of the quality of Korean tertiary education are also low. First, the mall-style uniform creation of university departments has prevented specialized university education from being realized, and changes in industry and society's demands are not being reflected. As a result, business leaders such as the FKI have strong complaints about university education. Meanwhile, the mismatch between the supply and demand for tertiary education is widespread, resulting in simultaneous youth unemployment and labor shortages. Also, most university students in Korea are college aged, and compared to advanced countries, universities in Korea are failing to accommodate working students of various age groups. In addition, with the recent decrease in birth rates, the student population is rapidly falling, posing a threat to the management stability of universities, which is the basis of university competitiveness.

To overcome these weaknesses, universities need a multifaceted approach to gain domestic competitiveness. If Korean businesses refuse to hire university graduates, it will be difficult to attract foreign students, and

impossible to spread Korean tertiary education model to the developing countries. Therefore, domestic competitiveness should be gained before improving international competitiveness. Also, considering that Korea's labor market is rapidly becoming more flexible, universities need to develop adjustment programs in response to this change.

iii. Opportunities

The opportunities for Korea to diffuse its tertiary education model to developing countries seem to be improving overall. Since Korea joined the OECD in 1997, its position in international society has improved. In addition, due to the recent popularization of Korean culture especially in Asia, the number of foreign students coming to study in Korea is increasing. Also, as China becomes an economic powerhouse, east Asia will become a gigantic economic block swaying the world's economic fate, and east Asia's education and culture will gain importance.

With the recent progress in the WTO, FTA talks, more opportunities will arise to diffuse Korean tertiary education model overseas. Although there have been many foreign universities entering Korea, Korean universities may have opportunities to expand into developing countries especially in fields such as IT or life sciences where they are highly competitive. A number of Korean universities are already trying to expand overseas through joint operation of courses with Chinese or Vietnamese universities, and overseas branch schools.

iv. Threats

One threat to Korea's attempt to diffuse its tertiary education policies or model in developing countries is that competitive universities from the USA and the UK are expanding abroad, in addition to institutions from Australia and New Zealand, which have exported education services abroad for a long time. British universities such as Nottingham University have already entered China's southwest industrial region of Ningbo, and American and

Canadian universities are also expanding into China (Kim Yeong-Cheol et al. 2005). A few foreign universities have entered Korea and are beginning to compete with domestic institutions.¹³⁾ Although most of these universities from these countries expand abroad for profit or to attract transfer students, Japan has a long history of providing non-economic ODA to developing countries to set the cultural and social basis for entry by its corporations. Considering these points, when trying to diffuse Korean tertiary education policy to developing countries, it will be difficult for the Korean system to gain competitive advantage if no attempt is made to differentiate it from the systems of other countries.

<Table 26> SWOT Analysis of Korea's Tertiary Education

<p>Strengths</p> <ul style="list-style-type: none"> - Plentiful human resources, talented students, desire for education - Highest tertiary education rate in the shortest time - Dramatic improvement in tertiary education quality - Continued efforts to improve tertiary education competitiveness (BK 21, NURI, etc) - Successful tertiary education universalization models (credit bank system, KNOU, independent degree system) 	<p>Weaknesses</p> <ul style="list-style-type: none"> - Universities have short history compared to those of the west - Poor education conditions and low education investment (student teacher ratio, education cost per student) - Lack of university competitiveness and specialization - Lack of responsiveness to industry demands - Lack of responsiveness to labor market flexibility (most of student population is college-aged) - Lacking foundation for globalization of tertiary education - Lack of university quality management system and autonomy
<p>Opportunities</p> <ul style="list-style-type: none"> - Rise of East Asia - Korea's increasing prominence in world stage - Korean wave in Asia - Possess largest students in study abroad - Competitive domestic universities appear 	<p>Threats</p> <ul style="list-style-type: none"> - Advanced countries already have a share of the tertiary education market, competition in education exports - Entry of leading universities from advanced countries into Korea - Rising competitiveness of universities in developing countries e.g. China

13) Many foreign universities that have entered Korea so far are specializing in their strengths and aiming for niche positions in the Korean market. Considering that this development can be used to correct weaknesses in the Korean university market while stimulating Korean universities, some analysts view this trend as an opportunity as well as a threat.

The implications of the above analysis on the diffusing Korean tertiary education model to developing countries are as follows (Chae Jae-Eun, 2007).¹⁴⁾ First, the SO strategy (strengths-opportunities strategy) involves fully making use of the strengths of Korean tertiary education system to make the most of opportunities in Korea and abroad. Recently, due to Korea's economic growth and the popularization of Korean culture, interest in Korea has grown, especially in Asia. Therefore, Korea must be able to establish its tertiary education policy and spread its education model in Asian countries. Korea can spread its 1960s manpower supply model to the least developed countries and credit bank system, NURI, and BK 21 projects to countries that are moderately developed. Also, individual universities can spread programs in which Korea is internationally competitive such as the IT expert training program, programs that are native and traditional to Korea such as Korean medicine, and lessons from Korea's economic development model and Korea's overcoming of the recent economic crisis. Because the development gap between Korea and developing countries is not that wide, these countries may want to refer to Korea rather than advanced countries in economic development.

Second, the ST strategy (strengths-threats strategy) involves using the strengths of Korean tertiary education system to minimize environmental threats. As mentioned above, universities from the USA and the UK, as well as those from Australia and New Zealand, are expanding into Asia. To overcome this situation the tertiary education policies and program demand of developing countries must be carefully analyzed and education programs that are differentiated from those of the USA and the UK must be provided. The fact that Korea was able to create an advanced tertiary education system in a short period without the long history of higher education possessed by the USA and the UK can be attractive to developing countries. Therefore, technical assistance must be provided to developing countries so they can expand tertiary education opportunities in a short period at low cost. In addition, economic support projects and higher education projects must be closely linked so developing countries can acquire the personnel needed for

14) The content of this section is based on Professor Chae Jae-Eun's paper regarding "ODA and Korea's Tertiary Education" (2006).

economic development through higher education. Because developing countries are often at an early stage of economic development, vocational training that teaches job skills and experience may be most helpful to them. Therefore, Korea could offer consulting for the establishment of junior college-level vocational training programs, or send experts in vocational training to developing countries.

Third, the WO (weaknesses-opportunities) strategy involves overcoming the weaknesses of Korean tertiary education system to make use of environmental opportunities. In Korea's case, the greatest weakness in spreading the tertiary education system to developing countries is Korea's low level of globalization. Few lectures are given in English, and almost no policy materials on tertiary education are in English. In addition, experts on globalized tertiary education policy are needed for Korea to spread its education systems abroad, but currently no such experts exist. In such a state, it is difficult to use the recent interest of other countries in Korea as an opportunity to spread Korea's education model abroad.

Therefore, to effectively export tertiary education, education policy materials must be provided in English, and international experts must be trained who can go to the developing countries and explain Korea's education policies. In the middle to long term, Korea's higher education system must be globalized through multifaceted efforts. If globalization does not occur, it will be impossible to spread Korea's model to developing countries.

Finally, the WT (weaknesses-threats) strategy involves minimizing the environmental threats and the weaknesses of Korea's higher education system. If this is applied to the export of higher education or external aid projects, etc, developing countries that have already been entered by advanced countries such as the USA, the UK, Japan, etc, should not be given aid by the Korean government, and other developing countries should be prioritized for education export and external aid. As mentioned above, expansion into developing countries by the USA and the UK is done to expand their tertiary education markets internationally, and is not related to external aid, and the USA and the UK, etc, usually expand into countries

that have a decent level of economic development. In contrast, Japan provides education support to developing countries to smooth the way for the international expansion of its corporations. Therefore when Korea attempts to export higher education to developing countries or expand external aid, it must target countries that have not already been entered by Japan. In addition, when considering the purpose of external aid, Korea should first expand into countries with difficult economic situations with little possibility of prior entry by foreign universities.

The four strategies examined above are not mutually exclusive and can be used simultaneously. However, when considering the limits of tertiary education funding related to education export or external aid, the SO strategy should be selected first.

D. SIGNIFICANCE OF UNIVERSALIZATION OF KOREAN TERTIARY EDUCATION AND IMPLICATIONS FOR DEVELOPING COUNTRIES

Korean tertiary education system had a very late start compared to those of the advanced western countries. Despite of its short history however, it grew rapidly and Korea now has one of the highest tertiary education rates in the world. To summarize, Korea's traditionally high desire for education had been suppressed during the Japanese occupation and exploded after liberation. Despite constantly growing demand for university admissions, education opportunities were only temporarily expanded in the 1950s, and then student populations were strictly controlled during the 1960s until the late 1970s, with the system remaining at the stage of elite education for a small minority of students. This policy of restricting student populations was ostensibly to match education supply to demand and prevent highly trained unemployment, but it may have also been motivated by the need to limit political demand. In the early 1980s however, to deal with overheated private tutoring, the university student population was expanded to meet university admission demand, and opportunities for higher education expanded dramatically. As a result, Korean tertiary education system

entered the mass education stage, and this expansion trend continued into the 2000s and the system entered the stage of universalization.

As higher education opportunities expanded, efforts were made to improve the education quality. The “university establishment standards law” of the mid 1950s stopped the indiscriminate establishment of substandard institutions, and the government tried to improve the quality of university students with the university student population policy and university admission policy of the early 1960s. In the 1970s, to create an educational atmosphere, experimental universities were used to reform the degree system.

Since the education reform deliberation committee was formed directly under the president in the mid 1980s to introduce education reform measures, education reform bodies have been formed directly under presidential authority and university reform gained momentum. As policy directions to improve competitiveness, globalization of tertiary education, university autonomy, and university specialization were explored and implemented.

The universalization of tertiary education through this process holds numerous suggestions for developing countries. First, universalization of education in Korea was a miraculous occurrence that took place in a newly-formed, undeveloped country lacking natural resources, and it can be used as a case that offer hope, encouragement, and vision to developing countries.

Considering that the universalization of higher education in Korea was possible due to the high public desire for education and the government’s open education policies, the governments of developing countries should have an open policy approach regardless of the public’s desire for education. Countries with lower desire for education may need a more active and open government policy. However, the expansion of opportunities for higher learning requires a more comprehensive study because it not only depends on the public’s desire for education but also the public’s living standards and the government’s financial condition, etc.

Although achieved in a short period, Korea saw the education system develop from the elite stage to mass stage, and finally to the universalization stage. During the elite stage, university policies were decided according to manpower supply plans that reflected industrial demand. During the mass stage, policies reflected student demand for university education rather than industrial demand for manpower. Considering this, developing countries that find it difficult to expand higher learning opportunities due to limited finances may need university population policies that follow manpower supply plans. However, as living standards improve and national finances allow more investment in higher education, countries should reflect student demand in their student population policies.

Along with Korea's quantitative achievement of education universalization, the quality of higher education must also be improved to strengthen university competitiveness. Korea's successful university reform programs such as BK 21, and NURI could be used as benchmarks by developing countries to create a university reform model that fits national conditions.

Finally, regardless of whether a policy is intended to expand higher learning opportunities or improve education quality, all policies should respect the autonomy of universities as much as possible. In reality however, higher education policies are affected by the country's overall conditions and the abilities of the people at the institutions of higher learning. If overall conditions for development of higher education exist and members are capable of autonomous action, it is preferable to have autonomous change by universities rather than top-down changes ordered by the government. But if overall conditions do not exist and members are not yet capable of autonomous action, government-led higher education policy may be more effective.



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