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**A COMPARISON BETWEEN THE HIGHER EDUCATIONAL
SYSTEMS IN MAINLAND CHINA AND TAIWAN**

by

I-MING WANG

**A Dissertation Submitted For Partial Fulfillment
Of The Requirements Of The Degree Of**

**Doctor of Philosophy
In Global Leadership**

**in the
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**at
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Abstract

Both Mainland China and Taiwan attach much importance to higher education. The two sides always try hard to develop higher education. This is one of China's deep-rooted traditional ideas and concepts. Since 1949, the two sides have been politically opposite, economically sealed from each other, and the contact between the people has been minimized. The two sides developed their own higher educational systems, respectively, according to the specific conditions and needs of the two varied societies.

The purpose of this study was to compare the higher educational systems in Mainland China and Taiwan, focusing on the similarities and differences between the two. The desired outcome of this study was to facilitate the communication and cooperation between both China and Taiwan in the international community of higher education and promote the development and reform of higher educational business within both entities.

This study carried out the following four aspects in order:

1. It described both higher educational systems and conducted a brief historical analysis of how they developed.
2. It described the higher educational systems of both countries, as they exist today.
3. It revealed the strengths and weaknesses, and similarities and differences of each system.

4. It showed how the political, economic, cultural and technological factors in the society and environment of both sides have affected the higher education systems and how those elements contributed to making them what they are today.

Through the investigation of these four aspects, this study found:

1. Common features of higher educational systems on both sides of the Taiwan Strait exceed differences.
2. Attaching importance to and developing higher education are long time policies that Taiwan and Mainland China both adhere to.
3. The political factors still have an impact on the exchanges and cooperation in the educational fields between the two sides.
4. The reform of higher educational systems of the two countries brings about more opportunities for countries with more highly developed educational systems to participate and invest in both sides.
5. The extent of higher education reform of both sides is different.
6. Increasing exchanges and improving cooperation are indispensable for the future cooperative development of higher education between the two sides.

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Table of Contents

Abstract.....	iii
Acknowledgement.....	v
Table of contents.....	vi
List of tables.....	xii
List of illustrations.....	xiii
Chapter I: Introduction.....	1
Background.....	2
Conceptual Underpinning for the Study.....	4
Expected Results of the Study.....	5
Significance of the Study.....	6
Statement of the Problem and Focus.....	6
Content of the Study.....	7
Limitations, Assumptions, and Design Controls.....	9
Definition of Key Terms	9
Chapter II: Literature Review	12
Overview	12
Scope of Development in Higher Education.....	17

Source of Educational Funds.....	22
Quality of Higher Education after the Expansion of Student Recruitment	23
Influence of the WTO	26
Taiwan Students Studying in Mainland China.....	29
Statements of Higher Educational Workers on Both Sides	31
Summary.....	34
Chapter III: Research Design.....	36
Problem and Purposes of the Study.....	37
Research Questions.....	37
Research Hypotheses.....	38
Data Collection and Instrumentation.....	39
Collection of Data	39
Scope of Materials.....	40
Procedure.....	40
Data Analysis.....	41
Higher Educational System in Taiwan after 1949.....	42
Higher Educational System in Mainland China after 1949.....	42

Higher Educational Systems as They Exist Today.....	43
Current Situation of the Higher Educational System in Taiwan.....	44
Current Situation of the Higher Educational System in Mainland China.....	44
Strengths and Weaknesses, Similarities and Differences of Each System	45
Characteristics and Disadvantages of the Higher Educational System in Taiwan.....	45
Characteristics and Disadvantages of the Higher Educational System in Mainland China.....	46
Common Features of Higher Education in Mainland China and in Taiwan.....	46
Differences between Higher Education in Mainland China and in Taiwan.....	47
Effects of Political, Economic, Cultural and Technological Factors on Higher Education.....	47
Social and Political Stability.....	48
Social and Economic Prosperity.....	48
Progress of Science and Technology.....	49
Cultural Traditions.....	49
Summary.....	50
Chapter IV: Results.....	52

Higher Educational System in China before 1949.....	53
Higher Educational System in Taiwan after 1949.....	55
Start of Higher Education of Taiwan.....	55
Continuously Adjusting the Educational Structure to Meet the Needs of Economic Construction.....	56
Stressing Educational Investment.....	57
Importance of Legislation in Higher Education.....	58
Developing Vocational and Technological Education for Applicable Personnel.....	59
Qualified Teachers.....	60
Private Schools and the Policy of Combining Government and the Public.....	62
Higher Educational System in Mainland China after 1949.....	63
Learning from the Soviet Union	64
Exploring the New Way of Higher Education	67
Current Higher Educational System in Taiwan.....	69
Management Mechanisms.....	71
Student Recruitment System.....	73
Funding.....	74
Education Policy.....	76

Problems after the Entrance to the WTO.....	77
Current Higher Educational System in Mainland China.....	80
Management Mechanisms.....	83
Student Recruitment System.....	85
Reforms on the Tuition System.....	89
Enhancing the Construction of the Important Universities.....	91
Development of Privately-owned Institutes of Higher Learning.....	92
Problems after the Entrance to the WTO.....	93
Strengths and Weakness, Similarities and Differences of Each System.....	95
Characteristics of Higher Education in Taiwan.....	95
Disadvantages of Higher Education in Taiwan.....	102
Characteristics of Higher Education in Mainland China.....	105
Disadvantages of Higher Education in Mainland China.....	111
Common Features of Higher Education in Mainland China and in Taiwan...	119
Differences between Higher Education in Mainland China and in Taiwan ...	123
Political, Economic, Cultural and Technological Factors in the Society and Environment of Both Sides.....	128
Social and Political Stability Is the Basic Guarantee.....	129

Social and Economic Prosperity Is the Basis for Higher Education.....	130
Science and Technology.....	137
Chinese Cultural Traditions Are the Inner Force	143
Explanation and Discussion of Results.....	147
Chapter V: Finding and Conclusions.....	150
Conclusions.....	153
Recommendations for Further Research.....	155
Implications	156
Future Research.....	157
Summary.....	158
References.....	161

List of Tables

Table 4.1 Current Structural System of Higher Education in Mainland China.....	p.82
Table 4.2 Recruitment Expansion of Institutes of Higher Education in Mainland China from 1998 to 2001.....	p.88
Table 4.3 Scale of Students on the Campus of Institutes of Higher Education in Mainland China from 1998 to 2001.....	p.89
Table 4.4 The Number of Institutes of Higher Education in Taiwan from 1950 to 2002.....	p.99
Table 4.5 The Number of Students on Campus and the Enrollment Rate of Youths of the Right Age in Every 100,000 People in 1995.....	p.114
Table 4.6 The Number of Colleges and Universities of Mainland China in 1949, 1953, and 1958.....	p.136

List of Illustrations

Figure 4.1. Higher Educational System in Taiwan..... p.70

Chapter I

Introduction

It was an important historical phenomenon for Taiwan to separate from Mainland China in 1949. Mainland China and Taiwan originally were a unified country, using the same language and same alphabet characters. Now, there are still similarities in many aspects. The differences are primarily governmental. Taiwan has become more westernized and more developed in many ways. For instance, generally speaking, Taiwan is more affluent and open to western influences.

Both sides of the Strait value education highly. The high value of education is one of China's deep-rooted traditional ideas and concepts. Folk sayings, such as "nothing is noble except reading," and "there lies a fairy beauty Yan Ruyu and golden house in the books," are true reflections of how the common folk regard education.

Taiwan has been alienated from Mainland China for so long that discrepancies now exist in many areas. Two major differences lie within economics and mindsets. A serious problem has been with some of Mainland China's various policies. With different social environments, the higher educational systems on the two sides have gradually become different from each other. The development of higher education is closely related to a nation's power, especially in the era of globalization and knowledge economy. Due to the

antagonistic situation that has always existed between the two sides, the system of cooperation and exchange of ideas for higher education have encountered difficulties. However, since the end of 2001, with both sides successively entering the World Trade Organization (WTO), both will be confronted with the trends of the world. In such circumstances, how can communication and cooperation be facilitated between the international community and both sides as higher education becomes an important issue?

It is necessary to promote the awareness that Mainland China and Taiwan both have need for higher educational development, which can result in massive returns on investments.

This study sought to find the structural differences of the two higher educational systems through a status quo analysis. At the same time, it also tried to investigate the influences that the political, economic, technological, and cultural factors of both society and environment have had on the educational system.

Background

China is a nation that boasts a long history. Chinese people on both sides of the Taiwan Strait are descendents of the same Chinese ancestry. Taiwan has been separated from Mainland China since 1949. The two sides have been politically opposite and

economically sealed from each other. The contact between the people in Taiwan and Mainland China has been minimized. With such a background, the two sides developed their own higher educational systems according to the specific conditions and needs of the two varied societies.

This study examined the course of the development of higher education on both sides, measures taken and the similarities and differences between the two higher educational systems. In order to conduct a thorough analysis of these topics, the purpose of this research study was to facilitate the communication and cooperation between the international community and both sides of the Strait on higher education. The goals of this study were as follows.

1. Through investigations made in this study, understanding of the similarities and differences between higher education in Taiwan and Mainland China and future development was increased. The findings helped to draw a clear picture of the cooperation of higher education between the international community and the two sides.
2. Development of higher education is restricted by politics, economic conditions and productive forces. It is also closely related to cultural traditions. This study helped to deepen the mutual understanding of the higher educational systems of “Asian

countries and regions, which share the same oriental cultural tradition”, such as Mainland China, Hong Kong, Macao, Taiwan, Japan, South Korea, North Korea, and other South-east Asian countries.

3. The study promoted awareness of the fact that Mainland China and Taiwan both have a need for higher educational development, which could result in massive returns on investments. There exists great potential, in this era of constructional reform and in the existing social condition, for knowledge and information based industry as it replaces manufacturing as the center of economic growth.

Conceptual Underpinning for the Study

The purpose of this study was to compare the higher educational systems in Mainland China and Taiwan, focusing on the similarities and differences between the two. Mainland China and Taiwan share the same ancestry and the same cultural background, and their higher educational systems should be, in many aspects, similar. After the founding of the People’s Republic of China in 1949, the educational systems in Mainland China and Taiwan grew in differing social conditions and developed distinctively from each other. Such similarities and differences mirror the indivisibility in history and current reality of the two sides of the Taiwan Strait. Therefore, this study analyzed both

virtues and flaws of the two systems from a macroscopic attitude, through a review of the history of the development of higher education of the Chinese people and the status quo of the two systems. Then, the political, economic, technological and cultural impacts on the higher educational systems of Mainland China and Taiwan were further explored. Research results provided are of great value to the future development of the higher education systems on both sides of the Strait.

Expected Results of the Study

At present, civil communication and exchanges in the higher educational field between Mainland China and Taiwan grow in number every day. Exchanges with foreign countries in higher education are becoming increasingly extensive, as well. For example, a few universities, such as Beijing University, have successfully introduced the MBA programs from abroad, which are operated through cooperation with universities in the United States, Britain, and Australia. Institutes of foreign higher education are allowed to open campus branches in Taiwan. In the current era of globalization and knowledge economy, this study expected to analyze the different features as well as disadvantages and advantages of both higher educational systems to develop the advantages and discard the disadvantages. In other words, it tried to find commonalities of view for reference to

the exchanges between the two sides. It also tried to aid in the development of higher educational systems conforming to the international standards.

Significance of the Study

With regard to the current situation of the higher educational systems in Mainland China and Taiwan, many scholars from both sides have already conducted a great deal of research and produced a large number of opinions. However, they have been from many different perspectives and angles. The differences and opposition in the political arena have limited former studies. This study tried to compare the state of affairs of the higher educational systems on both sides of the Strait on the basis of former research studies for enforcement and extension of the current knowledge system. It is hoped that this study has contributed to the knowledge base in this field.

Statement of the Problem and Focus

This study focused on the similarities and differences between the higher educational systems in Mainland China and Taiwan. As long as there are similarities and differences, comparison occurs naturally. When one makes comparisons, historical facts and current reality must be taken into account. This study tried to expound upon the

similarities and differences of the two higher educational systems. The research questions for this study are:

1. Describe both the higher educational systems and conduct a brief historical analysis of how they developed.
2. Fully describe the higher educational systems as they exist today.
3. Show the strengths and weakness, similarities and differences of each system.
4. Show how the political, economic, cultural and technological factors in the society and environment of both sides have affected the higher educational systems and made them what they are today.

Content of the Study

The basic design of this study was to objectively investigate the historical and current existence of Taiwan and Mainland China higher educational systems, from the perspective of administrative management of higher education. To analyze the factors having impact on the future development of the higher educational systems of both sides from their similarities and differences, the following four issues formed the main body of discussion in this study:

First, the study described the hundred-year history of the higher educational systems both in Mainland China and in Taiwan. This history started from the origin of the Chinese education, and ended right before 1949, which mainly summarized the history of the development of China's higher education, including the time when Taiwan was occupied by the Japanese. This part described the common history of both Mainland China and Taiwan, and served as the starting point for study of the higher educational systems of both sides.

Secondly, the study reviewed and analyzed the current higher educational systems of Mainland China and Taiwan. This part covered the period from 1950 to present, giving an account of the history of the development of higher education on both sides of the Taiwan Strait respectively. It focused on the current situations of the two systems.

Third, the study compared the advantages and the disadvantages, as well as similarities and differences, of the higher educational systems on both sides of the Strait. Such comparison was based on a combined macroscopic analysis.

Fourth, this study expounded on the impact that the higher educational systems have had on both sides from various political, economic, technological, and cultural bases. This part analyzed the effects the above factors have had on the developmental processes of the two higher educational systems, both negative and positive.

Limitations, Assumptions, and Design Controls

Research in this study was both historical and practical in terms of content. In terms of time, it included modern practice as well as ancient history. Yet the comparison between Mainland China and Taiwan began only after 1949, because the two sides were separated in the year 1949. After that, the two sides started to develop higher educational systems separately.

Because of the difference of the geographic condition and the political and social nature of the two sides, it was impossible to find a clear-cut criterion for comparison on higher education in this study, so the comparison here was only a relative and approximate one from a macroscopic perspective.

Definition of Key Terms

Five terms were defined as below.

1. Higher educational system: According to the definition given by the United Nations Educational, Scientific and Cultural Organization (2001), the higher educational system consists of three basic elements. They are (a) universities and colleges, including faculty members, students, material resources, missions and strategies, (b)

institutions directly taking part in the finance, management and mechanism of universities, and (c) guidelines for the organization and action of universities.

2. Both sides or two sides: It means both Mainland China and Taiwan.
3. Cultural Revolution: “The Cultural Revolution”, from May, 1966 to Oct., 1977, which occurred in Mainland China, was a civil strife which was started by the former chairman of the Chinese Communist Party, Mao Zedong, and has brought severe disastrous consequences to the party, the nation and its people of all nationalities (Central Committee of Chinese Communist Party, 1981).
4. Curfew Lifting: Kuomintang (KMT), National People’s Party set up by Dr. Sun Yat-Sen, retreated to Taiwan in 1949. It promulgated the law of “the Urgent Enforcement of Martial Laws in the Taiwan Region” according to “the contemporary regulations in mobilization war-time period” on 19th, May, 1949. It ordered that an enforcement of martial laws should be carried out, and declared that the Taiwan region was in the state of war-time mobilization. The law restricted entrance into and exit of the border, carried out military administration, and banned any violating speeches and publishing, and activities like strikes and pageant in Taiwan. On 15th, July, 1987, Kuomintang declared the relief of this law and the 38 years of enforcement of martial laws in the Taiwan region came to an end. (Lai, 2001). This act of lifting the urgent

curfew in Taiwan is commonly called as “curfew-lifting”.

5. Knowledge economy: A broad definition of the knowledge economy is an economy that makes effective use of knowledge for its economic and social development. This covers tapping global knowledge as well as adapting and creating knowledge for its specific needs.

Chapter II

Literature Review

Overview

China has one of the longest histories in the world, and its system of higher education can be traced back to ancient times. There have been schools run by feudal officials since Shang Chou Period (1562BC – 771BC). After the Spring and Autumn Period (770BC – 476BC) and the Warring States Period (476BC – 221BC), private schools increasingly flourished in China. This brought about the phase in which official and private schools coexisted (Wang, 1999). Liu (2001) held the belief that as the nucleus representative of eastern civilization, Chinese ancient culture, including ancient higher education, had a strong influence upon the neighboring countries such as North Korea, South Korea, Japan, Ryukyu Islands, Viet Nam, and so on. After the 17th century, western culture came ashore to the east. With a long distance between civilizations, the importation of western culture became a rational historical movement. Wang (2000) stated that higher education in China once occupied a proud and shiny page in the development of the history of world higher education. It was only in the modern times that higher education in China has faltered.

The modern higher educational system in China originated from the “RenGui

Educational System”, i.e. the “RenYin Educational System” issued in 1902 and the “GuiMao Educational System” issued in 1904 by the Qing government which set up the length of schooling. From 1902 to 1903, the Qing government put this “New Deal” in practice and began to transform the traditional patterns of ancient higher education, and this resulted in the transition to modern higher education (Ji, 1997).

Yang (2001) held the opinion that the founding and development of modern higher education in China is mainly the outcome of learning and influence from the west. Roughly, China learned from Japan during the end of Qing dynasty and the beginning of the Republic of China. After the May 4th Movement of 1919, China learned about higher education from Europe and the United States. Liu (2001) agreed with Yang’s opinion and held that western higher educational system was transplanted in China via Japan during the end of Qing dynasty and the beginning of the Republic of China. Through transforming schools, abolishing imperial examinations, and prospering colleges, the intrinsic higher educational system in China basically turned into the current modern higher educational system.

However, after 1840, higher education developed at a very slow rate because of the social turbulence caused by repetitious foreign invasions. In 1949, Kuomintang moved to Taiwan, and the People’s Republic of China was founded. Since then, Mainland China

and Taiwan have been developing higher education according to their own realities.

Hua (1999) believed that due to the need for the economic development, Taiwan continuously adjusted education policies, which brought education and higher education on to the fast track of development. As a result, it promoted the economic development and achieved distinctive effects. Li (2002) held that the development of higher education in Mainland China was inconsistent, but after the 1980's, with the establishment of a series of correct route, guideline, and policies, Mainland China adjusted and reformed higher education policies and practices, and also gained compelling achievements.

During this period of developing higher education in the Chinese nation, a large number of treatises and works come into being. Due to many different reasons, some of these treatises and works had some shortcomings. For example, Su, Lei, and Chang (2000) reported that, *A History of Education in China*, written by Mr. Huang Shaoqi and Mr. Liu Yihui in early 20th century, is rather famous, as it was the first book on China's educational history written by a Chinese. However, this book only wrote about the educational system in the time before the Chin Dynasty (221BC – 206BC). It has little discussion on higher education and is disordered in structure. Guo (1916) addressed these issues in his book, *A History about the Development of Chinese Educational System*. It contains a history of the Chinese educational system from ancient times to the early years

of the Republic of China. This book also has its own limitations. There are only 50,000 words in it, which means there are not enough words and too little content. This book mainly involves the origin and development of new educational system in modern times. So, it is actually a kind of dynastic research, which lacks persuasive strength in the research on higher education.

Certainly, most of these books are highly valuable to the research of higher education in China. For example, Gu (1981) put forward different research efforts regarding the development of the higher educational system of China. His emphases are put on schools in studying Xi Chou period (1066BC – 771BC). The imperial examination system is given the same treatment in studying Han and Wei periods (202BC – 534AD), while studies on dynasties from Sui and Tang periods (581 – 907) to Ming and Qing periods (1368 - 1911) center on three aspects including schools, imperial examinations, and colleges. This kind of division has important reference value for the research on different states. Summarizing previous research findings, Mao and Chen (1988) proposed and established a basic pattern for ancient higher educational system research from the following aspects including culture and education policies, official school, private school, and the choosing of scholars as officials. This pattern widens ways of thinking for research, and therefore is extremely helpful.

Xu (1993) elaborated on the development history of education and higher education at different periods, and fully agreed with education's (especially higher education's) effect on Taiwan's economic development. He also recommended strongly advancing higher education in Taiwan through further investment in higher education and improving the investment environment for private colleges and universities. Wang (1997) talked about public opinions and attitudes in the process of Taiwan's education reform. He also put forward some good suggestions on existing problems and new ways for the reform of the entrance examinations for Taiwan's colleges and universities.

Yang (2000) offered a detailed analysis on the rising and development of training objectives, instructor and student sources, and teaching characteristics of Taiwan's vocational education. He thought that the main lessons from the success of vocational education in Taiwan for Mainland China were to first solve problems concerning the structure and function of colleges and universities and the worthy position of vocational education; then get down to student source and teaching troops.

All these studies played a significant role in promoting the development of higher education on both sides. However, the scholars in higher education on the two sides of the Taiwan Strait have different views on the issue of higher education development, due to long separation. This study summarized the following five issues with different views

on both sides for further introduction.

Scope of Development in Higher Education

The scholars of higher education in Mainland China have different views regarding the scope of development of higher education. Some think that higher education in Mainland China has and is capable of precipitating development; otherwise, it would restrict the economic development of Mainland China. Zhu (1999) summarized the major arguments as shown below:

1. The economy of Mainland China needs to keep growing at a continuous, fast and harmonious rate for a long span of time. The trend of the economic and social development certainly will require higher education to play a more important role.
2. Mainland China is facing the challenge of the knowledge economy. Preparing for the coming of the knowledge economy, institutes of higher education have already evolved from being on the margin of the society to the center of the economic development. This is bound to affect the progression of the higher educational development.
3. After the reform and opening up, the people's living standards in Mainland China increasingly improved. The demand for and purchasing ability of the people for

education also increased. This fact would undoubtedly make conditions advantageous for the development of higher education.

4. At present, Mainland China faces great unemployment pressure. Developing higher education and postponing the search for employment would be quite helpful in releasing the pressure of unemployment.

Some think that higher education in China should develop steadily. As Zhu (1999)

summarized:

1. As a developing country, the economic development level of Mainland China only has limited capability to support the development of higher education. Many college graduates begin to encounter trouble with employment nowadays.
2. Although there is still a disparity between the scale of higher education in Mainland China and in the countries of the same developmental level, the number of college graduates of Mainland China is the largest in the world. In Mainland China, the number of students entering higher education is rather small, but the graduate rate is very high. Thus, Mainland China can get the same number of university graduates from a much smaller scale of students studying in universities.
3. According to his calculation, if the GNP of Mainland China grows by 3%, the

number of university graduates should grow by 2% during the long term. The university graduates of the society are the result of the accumulation of many years, the increase of which cannot be changed simply by the expansion of a higher education scale in a short period of time. It is wrong to ignore the fact that higher education in Mainland China has already enjoyed a growth rate exceeding the economic development level and is keeping a strong upward momentum simply because of a lower growth rate of higher education than the economy in a short time.

4. Disparity between the higher education development in different countries is a fact, but the reasons for it are complicated. Therefore, comparison of different scales of the higher education development in different countries can only be regarded as reference, not as ample and sufficient ground for policy making.

Some think that the expansion of higher education in Mainland China should proceed at a moderate rate. From the perspective of social demand and supply for higher education, Mainland China still faces prominent problems. On one hand, according to the aim of development of the national economy of Mainland China, the GNP should grow by 7% annually, while the role high-technology plays in economic growth will be more

evident. All these form the huge demand for higher education. On the other hand, the possible investment to higher education in Mainland China might become severely insufficient. Mainland China has begun national construction in an all-round way in the 21st century (Wu, 2002).

President Jiang Zemin put forward the following in the 16th Congress of the Communist Party of China (2002): The first 20 years of 21st century, China will build up a well-off society in an all-round way, which will benefit more than 1 billion people. Wu (2002) stated that this grand goal needs gross investment of capital. On educational investment, the priority should allocate funds for nine-year compulsory education and reasonable arrangement of education of various kinds and levels henceforward. Higher education in Mainland China should keep an appropriate scale in the process of its development.

It is also a controversial issue in Taiwan, especially in recent years. Some educational workers hold doubts as to whether the expansion of higher education should still proceed, due to the condition of insufficient recruitment of students of colleges in Taiwan. Lin and Huang (2001) found the yearly capacity of higher education in Taiwan is approaching the total number of high school graduates each year. In other words, the development of higher education in Taiwan has nearly reached saturation. He also

worried that the student recruitment of higher education in Taiwan would encounter a serious predicament in the future, due to Taiwan's entering WTO, expanding educational businesses, expanding schools, and the decline of the total number of high school graduates per year. Zhu (2001) said, "The higher education in Taiwan is abused nowadays. It is more difficult to fail it than to pass the entrance examination."

Even the president of Academia Sinica of Taiwan, Li Yuanzhe said, "We cannot help being suspicious of the necessity of building so many colleges and universities in Taiwan." (Shiu & Guei, 2001). Nevertheless, Iv and Peng (2001) stated that there is a positive correlation existing between the fast expansion of higher education and the whole economic development in Taiwan. He believes that there is an absolute need for expanding higher education, because Taiwan asks for more human resources of high quality in order to meet the needs of industries of high technology and promote the level of international competitiveness.

Is it necessary for Mainland China and Taiwan to expand their respective higher education, and what is the appropriate scale of expansion? These are serious questions requiring careful investigation, analysis and reasoning.

Source of Educational Funds

The funds for higher education in Mainland China and Taiwan were primarily provided by the government. In Taiwan, the relationship between higher education and the government notably changed after the 1980's. The role of the government gradually changed from controlling to monitoring. The government gave higher education more room for self-management on one hand and reduced public funds and increased the proportion of funds raised by the institutes themselves, on the other. The purpose was to alleviate the financing burdens and force higher education to be more voluntarily responsive to the market, i.e., to meet the needs of families, students, employers, enterprises and the governments on the procurement of teaching and research facilities (Dai, 2000; Wang, 2000).

Before the 1980's, Mainland China practiced a highly centralized-planning economic system relying mainly on public ownership. Higher education practiced the "welfare" system, free to students and the investment from the state is the major source for funds of higher education. But, the situation has changed. Chen (2001) stated that after 1980 a multi-level and multi-channel educational funding raising system was established, which mainly based on appropriation from the central and local governments, as well as developing industries run by the schools, accepting social donations, collecting

tuition fees and incidental expenses.

Zhang (1999) said that Mainland China has already developed a new way to raise educational funds through practices for many years, which includes six major channels, namely financial appropriation from the government, collection of taxes and fees used for education, collecting tuition fees from students in non-compulsory education periods and incidental expenses from students during compulsory periods, developing industries run by schools, supporting collective funding schools and educational donations, and establishing education foundations (in simple words, they are “finance”, “taxes”, “fees”, “industries”, “society” and “foundations”). Liu (2001) concluded after research that the funds for higher education in Mainland China are from more multiple sources than Taiwan.

Quality of Higher Education after the Expansion of Student Recruitment

The perspectives of scholars on the two sides of the Taiwan Strait regarding the issue of higher education quality after the expansion of college student recruitment have become obviously different. Because of the opinion that the education quality would decline after the expansion of college student recruitment, the spokesperson of the Ministry of Education in Mainland China said, on April 24th, 2002, such is only a

deduction based on individual cases, lacking sufficient proof and not precise technically.

The education quality only can be assessed by academic examination committees or other academic institutions, formed by experts. However, the quality of education depends upon how it can satisfy the demands of the social economy on the whole in the final analysis. The demand of human resources of the society is always changing and developing; therefore, the criterion of quality is also an always-changing notion. In different historical periods, the criteria of quality were different. The traditional concepts often held unitary criterion of the values of persons of ability and quality criterion with no characteristics. As the socialist market economy was established, the demand from society for persons with various abilities gradually gravitated in a multiple and diversified manner, and simultaneously, quality criterion also headed toward diversification. When addressing the regular pattern in the development of education, it is evident that higher education in Mainland China is in transition from elite education to popular education.

In 2001, the gross recruitment rate of higher education surpassed 13%, with 30% in some developed regions. Such makes the function of selection of universities more important. It is quite normal to eliminate some unqualified students through the process of selection. In some North American and European countries, the elimination rate is

normally between 10% and 30%, and the highest even reaches 40%-50% (Liu, 2002).

Li (2001) also said, after the expansion of college student recruitment in Mainland China, the “doorsill” at the entrance to colleges and universities is bound to fall every year. He did not think this expansion resulted from higher education lacking in quality.

But Taiwan has a different opinion on this issue. Zhu (2001) felt deeply disappointed over the quality of education after the expansion of college student recruitment in Taiwan, and said, “Higher education of Taiwan only remains a name, but no longer keeps the essence.” Chen (2001) also reported, “Both the student recruitment of higher education and the number of colleges and universities in Taiwan expanded fast in the past few years, but educational resources are not solid enough. In fact, resources are facing the predicament of insufficiency. Even after many years of practicing educational reforms, the government still failed to improve the learning environment efficiently. The worst is that the learning attitude and the basic ability of students are going down as they accompany the expansion of higher education.”

At the “Symposium on Challenges in the E Century” held by Minchuan University in Taiwan on March 22nd, 2002, scholars from Taiwan’s higher education circle pointed out that the colleges and universities in Taiwan have quickly increased, but the quality of students has become comparatively lower. They also said that the increase of the number

of higher education institutions does not promote the educational level in Taiwan as a whole, but leads to failed quality of colleges and universities. In fact, the inflation of Taiwan's higher educational institutions is led by government policy, which is conducted in the simplest way by upgrading junior colleges to colleges and colleges to universities. This kind of operation increases the number of students and satisfies the expectations of going to college, but lacks promotion in quality and normalized competitive mechanisms and guaranteeing measures; and therefore, affects the development of quality a college should maintain (Wang & Uei, 2002). The education quality after the expansion of student recruitment influences the development orientation of higher education on both sides, which calls for further analysis and comparison.

Influence of the WTO

Gao and Chen (2002) probed the influence of the World Trade Organization (WTO) on Taiwan and concluded, "To leave the higher education to the control of the WTO, before a comprehensive consideration, is dangerous. It could be asserted that if the administrative power of higher education is handed over to the WTO, the autonomy of academia would be seriously hurt, and the most damage would be to higher education in developing countries." Cai (2000) said, "The so-called liberation of education in Taiwan

is not to return the educational power from the authorities to the people, but to hand it to the market or financial groups that manipulate the market, or even to give it up to international capital by the hand of the WTO negotiators.” Tai (2001) also argued that economic globalization resulted in the global capitalism and global pressure of open market, and political globalization weakened the state.

Nevertheless, Xu (2001) stated, “After the entrance to the WTO, the pounding to education may be inevitable in the short term, but in the long run, this would inject a new torrent to the old educational system. Facing the opening up, we should not hold the ostrich attitude. We have to welcome the challenge with a broad mind. We should regard the corner as another turn to a broader way.”

The educational workers in Mainland China expounded clearly their attitudes to that in an article entitled: “Integration, Confrontation, Breakthrough and Surpassing - Entering the WTO, an Inevitable Choice of Higher Education in China in International Competition”. The article says, “Entering the WTO means the government functions of administration and management of a sovereign state will be replaced by international public order and international conventions to a certain degree.... Entering the WTO speeds up globalization of higher education. The international flow of financial capital, sharing of educational resources, the international contending for students, and the

re-division of the domestic market shares make higher education in China face challenges, and bring about boundless opportunities for the development as well.”

(Zhang , 2001)

Dr. Wu Yan, director of Higher Education School of Beijing Educational Science Institute, pointed out in an interview with the press that China’s entrance to the WTO would bring about profound changes in the higher education industry in China, as much as in other sectors. Although China’s higher education faces the test of the WTO, He still shows optimism toward the expectations of higher education in China. He said, “Entering the WTO will become an opportunity for construction of an open and modern higher educational system in accordance with Chinese characteristics in China. It is a trend of integrating higher education in China to the international higher educational system. It is also a real opportunity to realize the conformation to the world, which must be conducive to the long term development of higher education of China” (Jiang, 2001).

The President of Guanghua Management School of Peking University, Yining Li’s view is that, there is a popular view currently in society, that China’s entrance to the WTO is more advantageous in the long term, but in the short term, it might be more disadvantageous. In fact, this is not correct. Although the tariffs are lower, and foreign investment increase after China’s entrance to the WTO, the entrance to the WTO is more

advantageous even in the short term (Chu & Shr, 2001).

Taiwan's view regarding the entrance to the WTO is different from that in Mainland China. As mentioned above, to the WTO, Taiwan lays more stress on the side of risks, but China sees more opportunities. This reflects a different status quo in higher education of the two sides. This issue needs more analysis and comparison regarding the current situation and the future development of the higher educational systems on both sides of the Taiwan Strait.

Taiwan Students Studying in Mainland China

Some Taiwan scholars worry that more and more Taiwan students will go to study in Mainland China, and Taiwan will lose its students. For instance, the former "Education Minister" Caoyang Yang said, "There is already a big back lash coming from foreign universities entering Taiwan, but compared with the future development of Mainland China education, it is only like a small sorcerer in the presence of a great one.... The universities in Mainland China are of rather high academic level, tuition is inexpensive and no language barrier or the problem of adaptation to the local life style exists, therefore the Taiwan students certainly will rush to Mainland China to study. Such will be a fairly strong challenge for college recruitment and retaining intellectuals."

Dr. Shihong Zhan, president of Taiwan Yuanzhi University, also agrees with Yang, “Taiwan and Mainland China share the common language and identical culture. There are more and more Taiwan businessmen investing in Mainland China, which attracts many young Taiwan students to study in Mainland China for a great many of job opportunities stored there” (Chen, 2001).

Yet there are also some others with different views. Some think there is nothing to worry about. As a member of the Cultural Division of the Taipei Economic and Cultural Office in San Francisco, Huang (2002) stated that though the society of Mainland China nowadays is more open than before, it is still some distance away from a free and democratic one. Though the two sides share the same language and the same ancestry, the differences in political ideology and social conventions would make it difficult to study in Mainland China. She also says that the Taiwan Education Ministry is still waiting for the formal policy made by the Taiwan Mainland Affairs Council about the recognition of diplomas and degrees granted by Mainland universities. She warned that although these degrees may be recognized in Taiwan, when the students come back from Mainland China to develop their careers, they face the uncertain attitudes and assessment of Taiwan society to their Mainland China degrees. In contrast, she also encourages people to think that the current pressure of entering the universities in Taiwan is greatly

released.

The colleges and universities in Taiwan are strengthening their competitiveness to attract students who can choose a suitable university for higher learning. She strongly believes at present that Taiwan is in the upsurge brought on by the opening up, and after a certain period of time., Taiwan students will carefully consider whether it is worthwhile to reach for a far place and to give up a close opportunity, if Taiwan higher education institutes continue to promote their international competitiveness.

Statements of Higher Educational Workers on Both Sides

As mentioned above, whose idea is the correct one? This must be proved by comparing and analyzing the current situation in Mainland China and in Taiwan.

The above different statements of higher educational workers each side are not only simply questions of points of views, but also questions of practice in reality. This means that systems of higher education in Mainland China and in Taiwan still differ from each other in some ways, and even the views of educational workers on both sides are somehow different. This study deems that it is impossible to resolve these differences, if there is only partial and low level discussion. The only way is to compare the higher educational systems in Mainland China and in Taiwan from a macroscopic perspective.

In this way, the educational workers on both sides can find their problems and determine their development directions for higher education in Mainland China and Taiwan.

Comparisons between the higher educational systems in different social backgrounds have been researched by some of the higher educational scholars on both sides. For instance, Wu and Ian (2001) edited a book *Stand in China and Look Widely at the World*, which merges comparative education, Chinese and world educational history, and the history of cultural and scientific exchanges. It tries to depart from the current situation in China and investigate the discipline and historical experiences of the world 's educational development. It is certainly novel. Yet, it is regretful that it does not list relevant content about Taiwan. Yuan (1999) used a comparative system to compare and investigate the basic topics such as the developing routes, management mechanism, educational structure, recruitment system, teaching reform, scientific research work, educational funding, and teachers in higher learning schools of the major developed countries. This book contains abundant new material and is highly readable. Xu (1999) carefully reviewed problems occurring in the development of higher education in China and the United Kingdom in contrast. He brought forward the idea that the future development of the higher learning institutions in China, as a whole, is basically decided by the future economic system, personnel system and educational system in China. Yet,

he failed to keep probing into this issue. Sun (2000) analyzed the disparity of Internet education between Mainland China and the advanced countries. She said, "Because of the development of Information Technology, Internet education will play a more and more important role in China's education. The state should take strong and unified measures to speed up the process of Internet education construction through policy guidance and investment." She raised this question, but did not bring forward the solution.

Liu (2001) explored and compared the influence of the entrance to the WTO upon the higher education market of the two sides respectively. He analyzed some problems still existing in higher educational systems in Mainland China and in Taiwan. He suggested that the competitiveness of higher education in Mainland China and in Taiwan should be largely promoted. Mainland China should produce students that can be accepted by businesses, whereas, Taiwan should expand the sources of students. He did a historical survey on problems faced by the five year higher vocational schools, and on the solution in retrospect of the forming, disappearing and restoration of the five-year higher vocational schools and their development and evolution in Mainland China and in Taiwan. Then, he put forward suggestions for future development of such schools on both sides. This article clearly narrates the history, precisely analyzes the questions and

gives practical suggestions.

This research, based on the experiences of the surveys mentioned above, helped determine the objectives for this study. This study compared in a multi-perspective way higher educational systems in Mainland China and Taiwan. Through analyzing deep characteristics and disadvantages, and investigating similarities and dissimilarities of higher educational systems in Mainland China and Taiwan, this study was able to find linking points for the two sides, which could be used as reference for both sides for exchange and for conformity with international higher education.

Summary

The founding and development of modern higher education in China is mainly the outcome of learning and influence from the west. Since 1949, Mainland China and Taiwan have been developing higher education according to their own reality respectively.

Taiwan has continuously adjusted education policies for promoting the economic development and achieved distinctive effects, but the development of higher education in Mainland China was inconsistent. After the 1980's, Mainland China just adjusted and reformed higher education project, and also gained compelling achievements.

Due to long separation, the scholars in higher education on the two sides have different views on the issues of higher education development, such as (a) the scope of development of higher education, (b) source of educational funds, (c) quality of higher education after expansion of college student recruitment, (d) influence of the WTO, and (e) Taiwan students studying in Mainland China.

This means that higher educations in Mainland China and in Taiwan differ from each other in some ways. It was impossible to resolve these differences only through partial and low level discussion. The best way is to compare the higher educational systems in Mainland China and in Taiwan from a macroscopic perspective. In this way, the educational scholars on both sides can find the problems and determine the best development direction for higher education in Mainland China and Taiwan.

Through analyzing deep characteristics and disadvantages, and investigating similarities and dissimilarities of higher educational systems in Mainland China and Taiwan, this study was able to find the linking points for the two sides, which could be used as reference for both sides to exchange with each other and to conform with international higher education.

Chapter III

Research Design

Focusing on contents and questions of research, this study, from the macroscopic perspective of higher educational systems, objectively investigated the history and the current situation of higher educational systems in Mainland China and Taiwan.

Simultaneously, this study analyzed the factors which influence both the current situation and the future development of higher educational systems on both sides, including similarities and dissimilarities.

This study was designed in the following way because it was a unique historical phenomenon for Taiwan to separate from Mainland China. Mainland China and Taiwan originally were a unified country, using the same language and same alphabet characters. There are similarities in many various aspects. Therefore, it was necessary to depart from history, and find the common features of higher educational systems on the two sides. Moreover, Mainland China and Taiwan have been separated since 1949. In different social backgrounds, the higher educational systems of the two sides have gradually become different from each other. This study sought to find the structural differences of the two higher educational systems through the status quo analysis, and investigation of the influences that the political, economic, technological, and cultural factors of both

society and environment have on the educational system.

Problems and Purpose of the Study

Taiwan and Mainland China were separated from each other in 1949. Since then, they have been politically opposite and economically sealed from each other. The contact between the people has been minimized. With such backgrounds, the two sides developed their own higher educational systems according to the specific conditions and needs of the two varied societies.

This study expounded the course of the development of higher education of both sides, measures they have taken, and the similarities and differences between the two higher educational systems. Through conducting a thorough analysis of these topics, the purpose of this study was to facilitate the communication and cooperation between the international community and both sides of the Strait on higher education and to promote its development

Research Questions

This study carried out the following four tasks in order:

1. It described both the higher educational systems and conducted a brief historical

analysis of how they developed.

2. It fully described both higher educational systems, as they exist today.
3. It revealed the strengths and weaknesses, similarities and differences of each system.
4. It showed how the political, economic, cultural and technological factors in the society and environment of both sides have affected the higher educational systems and made them what they are today.

Research Hypotheses

Due to the difference of the geographic condition and the political and social nature between the two sides, it was impossible to determine a clear-cut criterion for comparison, so the comparison here was only a relative and approximate one from a macroscopic perspective.

The starting time of the history of the higher educational systems on both sides mentioned here was set in 1949, for this year sets the timeline for higher education in Mainland China and Taiwan.

The starting time for giving accounts of the status quo of higher educational systems in Taiwan was set in 1987. The starting time for Mainland China was set in 1977.

Data Collection and Instrumentation

Probing the four tasks mentioned above to obtain research regarding the higher educational systems in Mainland China and in Taiwan involved a broad scale of materials and fields. It was a process of collecting materials in a broader scope and conducting exploration in depth. It was also a process of selecting essential materials among general sources, determining fact from conjecture, and going deep to the core of the issues. The topic of the study required as much information as possible, quality as high as possible and strong reliability. Therefore, various ways of collecting materials were adopted to find out the most powerful sources and statistics.

Collection of Data

Through the method of broad collection of information, and analyzing and using materials to compare the higher educational systems in Mainland China and in Taiwan, the differences and similarities between the two educational systems were disclosed and a convincing conclusion was rendered.

The materials for this study came from many diverse sources. Materials from all perspectives (positive and negative, historical and practical, official and popular) were

included. First hand information was used as much as possible. Of course, on-site surveys and interviews were necessary to acquaint one with the facts that cannot be found in literature, books and periodicals. Materials collected were representative, convincing and reliable. Statistics were accurate, without any uncertainty or bias. After collection of materials in a multi-angle and multi-sided manner, material was synthesized, classified, arranged, identified and analyzed

Scope of Materials

The scope of materials included (a) collecting materials concerning the higher educational system in the past century in China (especially after the reform and opening up), and (b) collecting materials after the Japanese occupation of Taiwan, especially those in recent years.

After collection of materials in a multi-angle and multi-sided manner, the materials were synthesized, classified, arranged, identified and analyzed, so that the accurate, reliable, complete and applicable information could be extracted.

Procedures

It was necessary to apply various methods for collecting materials in different

situations. For collecting accurate and detailed information, the following points were always taken into consideration, (a) explicit objectives of material collection, (b) flexible means of material collection, (c) elimination of bias in collecting materials, and (d) timeliness of materials.

Data Analysis

According to content, subject, scope, and requirements of this study, the research design was as follows:

1. The history of the higher educational systems on both sides mentioned here was set in 1949, for this year was the timeline of higher education in Mainland China and Taiwan. In October of that year, the Kuomintang fled to Taiwan, and the People's Republic of China was founded. Since that year, Taiwan and Mainland China have been separated, and they proceeded to establish their own higher educational systems separately.
2. It was necessary to discuss the origin and development of higher education in China, for Taiwan and Mainland China share the same cultural traits. This part of history is the historical source of higher education for the two sides. The origin and development of higher education in China and the development of

higher education in Taiwan during the Japanese occupation were discussed.

Higher Educational System in Taiwan after 1949

The following topics were discussed:

1. The start of higher education in Taiwan
2. The continuous adjustment of the educational structure to satisfy the need of economic construction after Japanese occupation
3. The educational investment and the moving of higher education to first priority
4. The importance of legislation for higher education and ruling education by law
5. The development of vocational and technological education, and paying attention to training applicable personnel
6. The attaching of the importance of training qualified teachers and increasing the quality of teachers continuously
7. The encouraging of private schools and implementing the policy of combining the government and the public

Higher Educational System in Mainland China after 1949

The following topics were discussed:

1. The taking over and transforming of existing institutes of higher education in 1949
2. Learning from the Soviet Union in a comprehensive manner
3. The gradual establishment of a new higher educational system
4. The exploration of the new way of higher education
5. The frustration of higher education in Mainland China during the “Cultural Revolution” (1966-1976)

Higher Educational Systems as They Exist Today

Accounts of the status quo of higher educational systems in Taiwan and in Mainland China were given. The starting point for Taiwan was set in 1987, for on July 15th of this year, the Taiwan authority relieved martial law that had been in effect in Taiwan for 38 years. Since that year, the higher education system in Taiwan has since seen immense changes. The starting time for Mainland China was set in 1977, for the “Cultural Revolution” (1966-1976) ended a year before, and it is the first year the College Entrance System came back in practice. Since that year, the higher education in Mainland China entered into the era of flourishing development.

Current Situation of the Higher Educational System in Taiwan

The following topics were discussed:

1. Higher educational system
2. Management mechanisms of higher education
3. Student recruitment system
4. Funding
5. Education policy
6. Problems after the entrance to the WTO

Current Situation of the Higher Educational System in Mainland China

The following topics were discussed:

1. Higher educational system
2. Management mechanisms of higher education
3. Student recruitment system
4. Reforms on the tuition system
5. Enhancing construction of the important universities
6. Development of privately-owned institutes of higher learning
7. Problems after the entrance to the WTO

Strengths and Weakness, Similarities and Differences of Each System

Characteristics, strengths and weaknesses of the higher educational systems in Mainland China and Taiwan were discussed, and the two systems were compared. Due to the differences of the geographic conditions and the political and social nature of the two sides, it was impossible to determine a clear-cut criterion for comparisons. The comparisons were based on the following issues.

Characteristics and Disadvantages of the Higher Educational System in Taiwan

With regard to characteristics, four topics were studied, including (a) The rapid development of higher education (b) The attachment of the importance of vocational education (c) Private schools taking up a large proportion of higher education, and (d) The importance of legislation to education.

With regard to disadvantages, five topics were studied, including:

1. The scale of higher education is smaller.
2. Colleges and universities densely located in Taiwan, with good ones and bad ones spread out.
3. Incomplete finance systems of the universities and the lack of ability of universities to raise funds by themselves.

4. The lack of competitiveness in higher education
5. Quick development of Institutes of Higher Education

Characteristics and Disadvantages of the Higher Educational System in Mainland China

With regard to characteristics, four topics here were studied, including (a) a relatively complete and mature higher educational system (b) emphasizing fundamental education (c) abundant and quality student sources, and (d) a unique and pioneering self-study exam system.

With regard to disadvantages, five topics were studied, including:

1. The higher educational system in Mainland China on a small scale as a whole.
2. The unbalances among areas of higher development
3. The adjustment of management mechanisms as needed
4. The consecutive expansion of student recruitment
5. The unreasonable investment of funds for higher education

Common Features of Higher Education in Mainland China and in Taiwan

Four topics were studied, including:

1. The two sides are identical in some aspects like the length of schooling.
2. Both sides face some basic problems.
3. Both sides attach much importance to higher education.
4. Types of higher education are all very flexible

Differences between Higher Education in Mainland China and in Taiwan

Four topics were studied, including (a) different educational environments (b) different educational systems (c) different educational concepts, and (d) different backgrounds and means of education reform.

Effects of Political, Economic, Cultural and Technological Factors on Higher Education

Education is always influenced by the political, economic, technological and cultural conditions in the society and environment. On the other hand, education, especially higher education, affects the development of politics, the economy, technology, and culture. On one hand, higher education is restricted by politics, economy and culture, and on the other hand, it will have a counter effect on many aspects of politics, economy and culture, promoting or preventing its development. The following four issues were studied.

Social and Political Stability

Social and political stability is the basic guarantee to the development of educational systems of the two sides. The following topics were studied:

1. Social turbulence cannot guarantee the development of higher education.
2. Political movements in Mainland China, especially the “Cultural Revolution” brought disastrous consequences to her higher educational business.
3. Since martial law in Taiwan was abolished, the educational business has flourished.

Social and Economic Prosperity

Social and economic prosperity is the basis for higher educational development on both sides. Education is an activity of the development of human capital and the cultivation of talent. Higher education’s missions are to cultivate professional talents and to develop science, technology and culture for a country. As compared with basic education, it has a very direct and close relationship with society and the economy.

The following topics were studied:

1. Economic growth provides assurance to the development of higher education between the two sides.
2. Economic demand offers the direction of the higher educational development for both sides.
3. Higher educational development provides the economic development with supports of human resources and modern means.

Progress of Science and Technology

Progress of science and technology is the instrument of the higher educational development. The following topics were studied:

1. Science and technology change the teaching methods of higher education of the two sides.
2. Science and technology bring great influence to the development of higher education of the two sides.

Cultural Traditions

Chinese cultural traditions are the inner forces that promote the development of higher education of the two sides. The following topics were studied:

1. Cultural edification pushes forward the development of higher education of the two sides.
2. The development of higher education surely adds new content to the traditional culture.

Summary

This study, from the macroscopic perspective of higher educational systems, determined the structural differences of the two higher educational systems through the status quo analysis, investigated the influences that the political, economic, technological, cultural factors of both society and environment had on the educational system, and reached correct conclusions. Simultaneously, this study expounded on the course of the development of higher education of both sides, measures they have taken and the similarities and differences between the two higher educational systems.

Investigation of four research questions were conducted, including: (a) Describe both the higher educational systems and conduct a brief historical analysis of how they developed; (b) Fully describe the higher educational systems as they exist today; (c) Show the strengths and weaknesses, similarities and differences of each system; (d) Show how the political, economic, cultural and technological factors in the society and

environment of both sides have affected the higher educational systems and made them what they are today.

The starting time of the history of higher educational systems on both sides was set in 1949, for this year was the timeline of higher education in Mainland China and Taiwan.

The starting time for giving accounts of the status quo of higher educational systems in Taiwan was set in 1987, and the starting time for Mainland China was set in 1977.

Chapter IV

Results

The purpose of this study was to objectively investigate the historical and current existence of Taiwan and Mainland China higher educational systems from the perspective of administrative management of higher education; and to analyze the factors having impact on the future development of the higher educational systems of both sides and the similarities and differences of the two higher educational systems.

The following four aspects were organized in sequence to present the data analysis. First, the study tried to describe the hundred-year history of the higher educational systems both in Mainland China and in Taiwan. This history started from the origin of the Chinese education and ended right before 1949. This part described the common history of both Mainland China and Taiwan and served as the starting point for study of the higher educational systems of both. Secondly, the study reviewed and analyzed the current higher educational systems of Mainland China and Taiwan, from 1950 to present.

Third, this study compared the advantages and the disadvantages as well as similarities and differences of the two higher educational systems. Fourth, this study discussed the impact that the higher educational systems have had on both sides of the Strait from various political, economic, technological, and cultural angles.

Higher Educational System in China before 1949

Higher education in China can date back to the Shang Chou Period (1562BC – 771BC) of China's slave societies. "University" is seen on the excavated inscriptions on bones or tortoise shells of the Shang Dynasty, and "Right School" in the Shang Dynasty is the earliest university in China. Higher education in feudal societies developed rapidly from Tang Dynasty (618 – 907) and attracted large quantities of foreign students to come overseas to study, including those from Japan, Korea, and so on (Fang, 2000). After the Tang Dynasty academy of classical learning came into being and flourished in the Song Dynasty (Huang, 2002).

Yang (2002) reported that modern higher education in China began with the westernization movement in the late Qing Dynasty. The westernization movement advocated the implementation of new education; that is to say, it advocated learning foreign languages and foreign science and technology. The earliest new-type university in China was the "Western Studies School" now Tianjing University, founded by Sheng Xuanhuai in Tianjing, in 1895.

On July 4th, 1898, Guangxu Emperor established the first modern state-run university in China, Jingshi University, and now Beijing University. Since then, there

was a rapid development of China's "new-type university". In 1912, there were 122 higher education schools, among which 106 were junior colleges, including 12 higher normal schools, 64 law and politics schools, 5 medical schools, 5 agricultural schools, 10 industrial schools, 5 business schools, and 5 foreign language schools 11 are colleges (10 preparatory and 1 undergraduate), and the other 5 are of other types. From 1916 to 1920, there were 9,282 college students throughout the country (Fang, 2000).

During the period of the Republic of China, there was considerable progress in higher education. There were comprehensive types of schools, as the educational system became more mature, the number of schools redoubled. At the end of 1948, there were altogether 218 colleges and universities of all types. Particularly, normal and independent colleges developed rapidly. Prior to 1937, there was only one normal (Teacher's) university throughout the country. In 1948, that figure turned into 28, and the number of independent colleges turned into 80, from 32. (Yang, 2002)

Taiwan has been an integral territory of China since a very early period. China established administrative institutions there during the Yuan Dynasty (1272-1370). In 1624, Taiwan was occupied by the Dutch colonists. In 1662, it was recovered by Zheng Chengong, and China formally established prefecture there. After the Sino-Japanese Jia Wu Sea Battle in 1894, Taiwan sunk into the colonist rule of Japan for about half a

century and was recovered in 1945. (Feng, 1992)

The development history of education in Taiwan was congruous with that of provinces in Mainland China. During the occupation of Japan, the Chinese language was forbidden in schools (Huang, 2002). Because of the need to rule at that time, Japan also founded higher educational system in Taiwan.

Higher Educational System in Taiwan after 1949

In 1949, Kuomintang receded into Taiwan. At that time, the economy on Taiwan Island was quite depressed. In order to stabilize the situation, Kuomintang developed the economy without sparing any effort. Since men of talents were indispensable to the development of the economy, Taiwan took many measures to develop education, as well as economy. (Feng, 1992)

Start of Higher Education of Taiwan

When Kuomintang receded into Taiwan, there were only four colleges or universities there. They were Taiwan University, Taiwan Normal University, Taiwan Agricultural College, and Taiwan Industrial College. Partial departments of several mainland universities moved into Taiwan, such as Tsinghua University, the Central

University, Jiaotong University, and so on. Universities with the same names were established on the basis of these departments, and thus higher education in Taiwan started.

(Su, Lei, & Chang, 2000)

Continuously Adjusting the Educational Structure to Meet the Needs of Economic Construction

In the 1950's, the Taiwanese people received little education. Science and technology in Taiwan dropped far behind, and the economic strength was very weak. The most important task was to develop the economy and stabilize the society. Therefore, the most urgently-needed talents were those that received primary and middle education.

During this period, barring the government, no company was in need of, or was capable, of admitting college graduates. As a result, the basic education developed rapidly during this period, while higher education developed rather slowly.

In the 1950's, large amounts of labor force with low educational backgrounds were in need of educations, so the influence of higher education was rarely noticeable. When the 1970's came, Taiwan's economy was twice struck by oil crises. In the face of critical situations and the rapid development of science, technology and culture, Taiwan was obliged to adjust its economic development policy. The traditional vocational education was no longer suited for the rapid economic growth; consequently, Taiwan had to

vigorously develop its junior college and college educational systems. In 1985, Taiwan reopened its private schools which offered a junior college education or a college education. The number of universities and research institutes began to proliferate.

According to statistics, there were 343, 000 students in 104 institutes of higher education in 1980, among which 187, 000 were from 77 junior colleges and 156, 000 were from 27 colleges or universities. In 1994, the number of institutes of higher education increased to 130, and there were about 720, 000 students studying there; but, among these 130 institutes, the number of junior colleges decreased to 72, while that of colleges or universities increased to 58 with more than 340, 000 students on campus. (Wang, 2002)

According to statistics, in 2002, the number of institutes of higher education increased to 152, and there were about 1,240,000 students studying there; colleges and universities increased to 148 with more than 890, 000 students on campus. (Ministry of Education, Taiwan, 2003).

Stressing Educational Investment

Wang (2002) held that Taiwan had attached importance to different education investment directions at different periods, according to the need of the economic development. In the 1960's, when the economy recovered and started to take off, the

focal point of education investment was put on the national compulsory education, in order to improve the quality of the whole population and labor force. In the 1970's, when the economy was restructured, the emphasis was put on the vocational education, along with the advancement of industrialization and expansion of heavy industry. At the beginning of the 1980's, Taiwan rapidly developed junior college education through upgrading vocational education to industrial college (junior college) education. During the second half of the 1980's, Taiwan authorities accelerated the upgrading of technology and industry to improve industrial structure and productivity to strengthen its competitive edge against foreign rivals. Taiwan began with expanding higher education and improving the quality of higher education and the level of scientific research. Higher education investments rapidly increased and held 20 percent of all the government education investment.

Importance of Legislation in Higher Education

The rapid development of higher education in Taiwan depended on the various rules of law on education, excluding the need of economic construction and the guarantee of education investment. The establishment of various kinds of rules of law on education was highly beneficial to the standardization of education and the healthy development of

the whole education business.

Yang (1996) stated that current rules of law on education in Taiwan have generally constituted a rather complete system, which is stated in the “constitution” and all kinds of special laws on education, down to various administrative regulations and orders. Also, there are comprehensive categories of rules including all kinds of school education laws, social education laws, organizational regulations of institutions, personnel system law, and so on.

Developing Vocational and Technological Education for Applicable Personnel

With the increasing growth of Taiwan’s economy, its economic structure changed from internal to external labor-intensive export processing, which turned an agricultural society into an industrial one. At present, general universities in Taiwan attach more and more importance to research of applied science and technology (practical technology) and to technological education. Both traditional specialties and courses present the characteristics of vocational education. Meanwhile, institutes of higher vocational education constantly improve education and research levels on scientific and technological theories and overall quality of students. Institutes of higher vocational

education are more and more similar to general universities. In such circumstances, there is a tendency for “both ends approach to middle.” This tendency pushed people to energetically apply to start institutes of technology across Taiwan. Like general universities, higher vocational education has become more diversified and comprehensive in levels of educational qualifications and scale of administration. It cultivates not only Bachelor degrees but also Master degrees and Doctorates. Now higher vocational education has become one of the mainstays of higher education in Taiwan. (Yang & Han, 2002)

Qualified Teachers

Taiwan authorities attach much importance to strengthening and rebuilding teaching capacity in the course of developing education. Wang (2002) held that there are two characteristics of this practice:

1. Give first priority to normal education in order to meet the need of basic education. In the 1950's, Taiwan put forward the slogan “Teacher First, Normal School First”, and gave normal education first development priority. The priority was particularly demonstrated by the fact that there were constantly more and more normal universities, and teachers' competencies were constantly improved.

The main measures taken were as follows: (a) Build a relatively independent normal education system. In the present normal education system, normal universities and colleges are the standard institutions that cultivate teachers for elementary schools, junior high schools and senior high schools. Educational institutes of public universities are secondary institutions for cultivating teachers for junior high school and senior high schools; (b) Constantly improve the system and upgrade normal schools. In the 1950's, in order to meet the needs of national elementary schools, secondary normal schools were extended into five-year schools. In the 1960's, all of the nine secondary normal schools were upgraded to junior normal colleges to cultivate competent teachers for the nine-year national compulsory education. After the 1980's, junior normal colleges began to be reformed and upgraded into independent normal colleges. In 1981, the nine-year national compulsory education was basically fulfilled.

2. Put into practice the open policy of teacher cultivation and enhance the diversification of teacher cultivation. "Whether teacher cultivation should be unified or diversified" was once the bone of contention in Taiwan. In 1994, the Taiwan "Ministry of Education" passed the draft of "Teacher Cultivation Law", which prescribed that the average universities in the island could open

educational courses to cultivate teachers for elementary, junior and senior high schools and for infant schools. This open policy of teacher cultivation broke up the old tradition that only normal universities and colleges could cultivate teachers; and therefore, it provided multi-channels for cultivating teachers and promoting the transformation from a unified channel to diversified channels.

Private Schools and the Policy of Combining Government and the Public

Private school education is an important means to speed up the development of education in Taiwan. As a result of the rapid development of education, the huge educational fund aggravated financial burden. It affected the development of education because only public schools sustained education. Taiwan authorities implemented the policy of combining the government and the public and encouraged private schools which enhanced the development of private education. According to the statistics of “Ministry of Education” of Taiwan in 2001, there were altogether 143 universities or colleges, among which newly-established private schools and transformed junior colleges constituted the majority (Liu, 2002). Private universities occupy about 60 percent of all the institutes of higher education in Taiwan (Xia, 2002). The development of private education greatly lessens investment pressure of “government” on education. As for

junior colleges, colleges and universities, only five percent of the entire “government” higher education fund goes to private institutions each year, while the rest of the 95 percent subsidizes public ones that comprise less than half of all the junior colleges, colleges and universities. In other words, the financial burden of “government” investment for education on junior college, colleges and universities could be reduced more than one half due to the development of private education (Wang (2002) thought that this was the fundamental reason why Taiwan could rapidly develop its education on a large scale with education investment funds comprising less than 15 percent of the entire economic budget during the 1960’s and the 1970’s.

Higher Educational System in Mainland China after 1949

The higher educational system in Mainland China after 1949 developed on the foundation of the higher educational system which originally existed before. In 1949, the Chinese Communist Party (CPC) came into power and started the modernization of socialistic higher education.

At the beginning of CPC’s ruling, it took over and transformed those institutes of higher education left behind by the old society. According to statistics, there were 205 institutes of higher education in Mainland China with 117, 000 students on campuses in

1949. (Wu & Yian, 1997). China took different measures to take over public colleges and universities. Foreign aided church colleges and universities were turned over to be in charge of the Chinese people, while private ones were gradually changed into public ones, after being taken over through different phases. In this way, the Chinese government took back the ownership of higher education and made it serve the China socialistic construction. (Yang, 2002)

Learning from the Soviet Union

At the beginning of the new regime in Mainland China, the government could not find feasible ways to revive higher education because of diminished economic strength, lack of experience for running schools, and qualified administrative personnel. Peng (2001) stated that learning from the Soviet Union was the only choice at that time in lieu of finding better ways for reform.

At that time, Mainland China learned from the Soviet Union in a comprehensive manner and copied completely the Soviet educational system, education content, teaching methods, course contents, and ways of examining (Liu, 2001).

Peng (2001) argued that the so-called former Soviet higher educational pattern was to organize institutes of higher education according to different departments, trades, and

single subjects in order to meet the needs of training talents under the planned economy.

Without combining Soviet education with Mainland China's educational reality, defects of former Soviet higher educational pattern (such as the too minute division of specialties and too much repetitious construction of the same specialty) were restricted to a certain extent within the development of higher education in Mainland China.

After the takeover, recovery and preliminary reconstruction of institutes of higher education, Mainland China redressed irrational phenomena in old institutes of higher education. These phenomena included irrational layered structure, imbalanced regional distribution, laying stress on liberal arts and science and belittling engineering, and repetitious setup of similar departments and colleges. With this, Mainland China brought higher education into the track of cultivating professionals for economic construction. It was focused on speeding up cultivation of engineering and scientific and technological talents, improving efficiency of education, and redressing the imbalance of regional distribution of education. In 1952 and 1953, Mainland China twice adjusted departments and colleges of higher education on a large scale and reset specialties (Fang, 2000).

Therefore, a new higher educational system with special colleges as its mainstay was established according to the Soviet pattern. Under this system, universities in Mainland China were classified according to disciplines. Except for a few that still kept

several disciplines, a vast majority of universities had only one discipline. Universities were divided into 12 types including liberal arts and science (also called general), engineering, agriculture, forestry, medical, teacher training, languages, finance and economics, politics and law, arts, sports, and ethnics. Meanwhile, Mainland China implemented the policy of separating teaching and research.

Institutes of higher education did nothing but teaching, while research institutes such as the Chinese Academy of Sciences and the Chinese Academy of Social Sciences only dealt with scientific research (Wu, 2002). After such an adjustment, a very practical education pattern came into being, laying particular stress on scientific and engineering education in the whole educational system, emphasizing engineering in scientific and engineering education, attaching importance to special courses in engineering education, and paying special attention to technical operation in small scope among special courses (Wang, 2000).

If viewed from today's perspective, there were some obvious unreasonable factors among the adjustment of institutes of higher education and the separation of research and teaching. But under the conditions that existed then, the adjustment ended the irrational status in higher education, along with numerous and jumbled departments and imbalanced distribution. Generally speaking, it conformed to the need of political and

economic systems at that time and established a solid foundation for the industrial construction and scientific and technological development in Mainland China through cultivating a large amount of professionals.

Exploring the New Way of Higher Education

The period from 1956 to 1966 was called by Mainland China the “decade of socialistic construction”, and this was an important period in which Mainland China actively sought and developed its own way of higher education. After having the Soviet pattern has been in practice for some time, defects of the Soviet pattern of higher education gradually emerged. Moreover, relationships between CPC and the Communist Party of the Soviet Union worsened in 1957. In the course of opposing USSR, CPC totally negated the experience of higher education in the USSR and began to explore new ways of developing higher education in China.

In order to overcome the shortcomings learned from the Soviet, Mao Zedong stated in February, 1957 in his article, *How to Solve Problems within Our People in the Right Way* that “Emphasis in Education guidelines in Mainland China should be put on developing educates in aspects such as moral education, intellectual education and physical education, so as to make students become literate socialistic-conscious

workers.”

From 1958 to 1964, Mainland China successively started two “education revolutions”, hoping to overcome the defects from the Soviet pattern of higher education. Due to the political environment of the time, the two reforms were heavily tinted with irrationality and finally failed. To the contrary, the failing of reforms reinforced the Soviet style teaching system (Yu, 2002.)

Zhu (2001) held that from 1949 to the days before the Cultural Revolution higher education in Mainland China underwent phases of transformation, development, seeking and exploration, and improvement. To the year 1966, Mainland China had developed a rather complete category of scientific and technological specialties, a comparatively self-contained scientific and technological system, and a high quality teaching personnel, which met, by and large, the demands of an educational system suitable for the socialistic economic development.

During the Cultural Revolution, institutes of higher education were seriously devastated. The number of institutes of higher education decreased from 434 in 1965 to 328 in 1971. In that decade, Mainland China lost one million junior college graduates and college graduates who should have been cultivated. The consequences of the Cultural Revolution brought to higher education were calamitous, which caused a halt in

the education modernization in Mainland China (Wu & Yan, 1997).

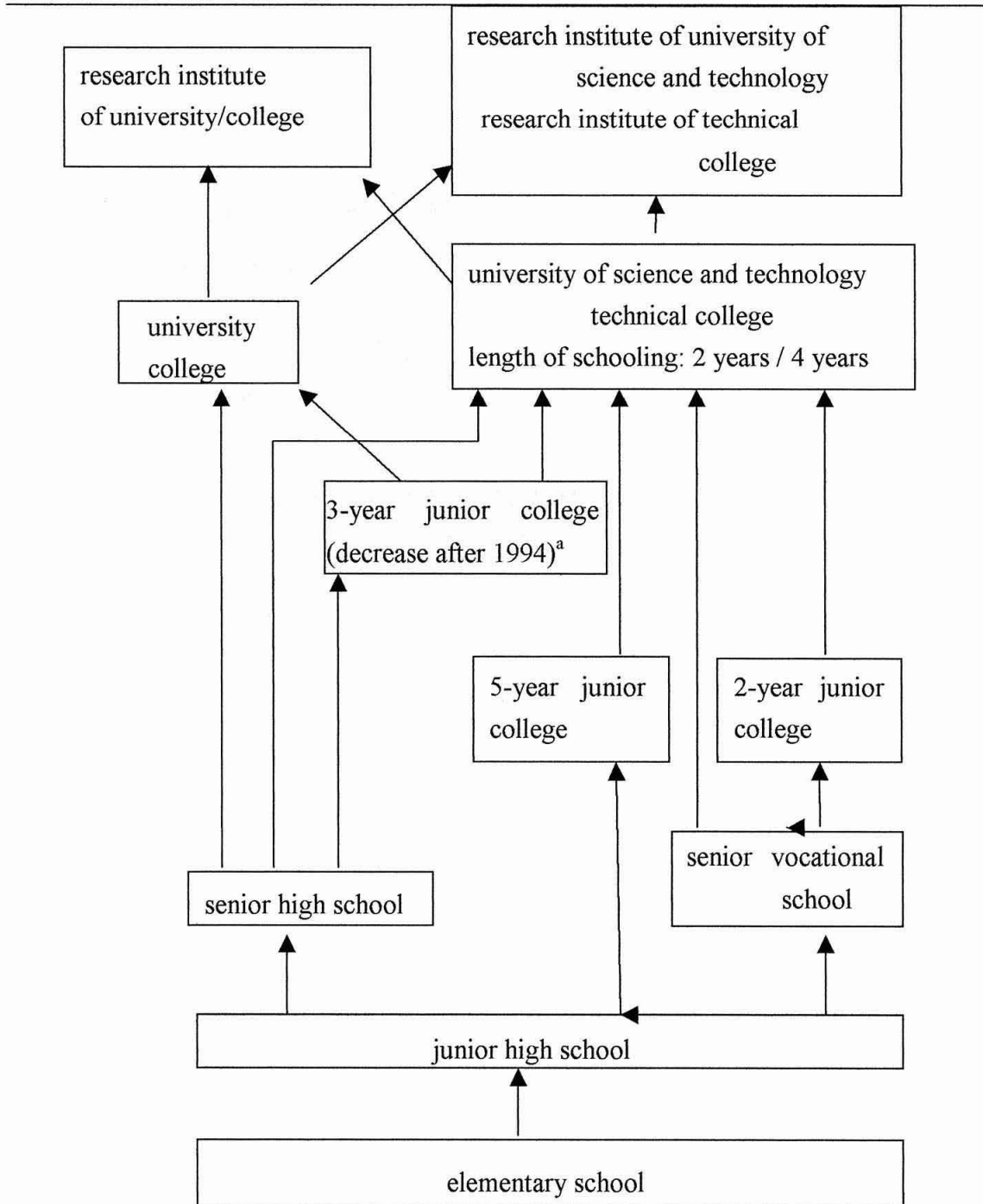
Current Higher Educational System in Taiwan

The start time for describing the current higher educational system in Taiwan is 1987. The current educational system in Taiwan is divided into standard education and vocational education. Standard education contains three phases: civil education, senior secondary education, and higher education. Vocational education includes primary vocational education and higher vocational education (Wang, 2001).

As shown in Figure 4.1, institutes of higher education in Taiwan include junior colleges, independents colleges, universities and research institutes in universities. Length of schooling of junior colleges varies according to entrance qualifications, including two years, three years, and five years. Those which have three and above colleges are called universities and those having less than three are called independent colleges. Length of schooling in standard institutes of higher education is four years, but at normal universities, law and construction specialties are five years, and medicine is six to seven years. There are a few other part-time education forms in Taiwan other than standard and vocational educations, such as night schools, correspondence schools, and supplemental education. (Social Exchanges across the Strait, 2000).

Figure 4.1

Higher Educational System in Taiwan.



From "The Taiwan Economic Development and the Change of Vocational Education," by J. Q. Li, 2000, *Comparative Education Research*, 1, 39-43. ^a All three year junior colleges were promoted and upgraded to the level of college or university before 2001.

According to type and structure, institutes of higher education in Taiwan are divided into universities, independent colleges, normal universities, normal colleges, colleges, normal junior colleges, other junior colleges and technical institutes. According to the structure of running, they can be divided into public and private ones. According to degree layered structures, they can be divided as junior, undergraduate, graduate, and doctoral. According to specialties, they can be divided into liberal arts, science, engineering, industrial, agricultural, medical, politics and law, finance and economy, arts, education, physical universities, and so on. Each can be further divided into several first level branches of learning to form departments. According to teaching forms, they can be divided into full-time, half-time, night-time, and part-time. They are mainly distributed in big cities such as Taipei, Kaohsiung, and others. (Su, Lei, & Chang, 2000)

Management Mechanisms

Both public and private universities have been administered according to the regulations and rules of law enacted by the “Ministry of Education” of Taiwan for college administration. To some extent, this facilitated standardization and institutionalization of managing institutes of higher education in Taiwan and kept higher education developing in an orderly way. But the extremity of this kind of administration

often led to the loss of independence of universities. This kind of centralized management of administration system was widely criticized in the circle of higher education in Taiwan. People even called institutes of higher education in Taiwan “universities of the Ministry of Education,” that is to say all the institutes of higher education are under the centralized management of the “Ministry of Education”. All the *state-run* universities (except military academies) were directly administered by the “Ministry of Education,” and principals of universities were directly appointed by the Ministry. A directorate was set up in private universities.

The directorate was in charge of decision making on things related to the development of the university. Principals of private universities were first selected by the board and examined and approved by the Ministry.

The new university laws, promulgated in 1994, definitely prescribed to grant self-rule to universities. That situation began to improve. Institutes of higher education began to develop in the direction of administration independently under macro control. Now, principals of *state-run* universities in Taiwan are now elected from school professors, and that creates a favorable external environment for further development of higher education in Taiwan (Lin, 1995.)

Student Recruitment System

The entrance examination of institutes of higher education in Taiwan is called the college joint examination and can be dated back to 1954. In 1976, Taiwan established a special college examination committee, which was in charge of putting forward a examination proposal and general affairs related to examination. (Liu, 2000) Yang (2002) argued that during the practice of the joint examination for 47 years, it has played a positive role in Taiwan's economic development through selecting a large amount of quality talents for society. However, there were also many problems in the college joint examination, mainly a single standard for student selection, rigidity of joint examination subjects, students' paying too much attention to some subjects over others, too early separation between liberal arts and science, laying too much stress on intellectual education against the educational objective of developing students in a comprehensive way.

The single examination channel and laying too much stress on the annual examination caused one examination to determine one's life, which posed a heavy pressure on students. Universities could not exercise their own initiative or establish their own characteristics of the schools and departments. The call for reform on the college joint examination was deafeningly heard.

From 1994, Taiwan began to study and try out a diverse entrance scheme, which fully replaced the joint college examination in 2002. The tenet of this new scheme is “to select befitting students to enter proper colleges for suitable development through advisable ways” (Xu, 2002; Yang 2002).

Yu (2001) introduced the idea of the diverse entrance scheme have two types: “selection scheme” and “respective distribution of examination scheme”. Selection scheme is developed through combining current the application system and recommendation system; respective distribution of examination scheme recruits students according to their subject aptitude test and the grade of examination on a given subject. The diverse entrance scheme aims at that those students with different aptitudes, potentials, and specialties, and all have the chance to be selected for institutes of higher education for further studies through diverse entrance channels.

Funding

Chen (2001) showed that different policies toward public and private schools have been consistently carried out in the education finance system in Taiwan. In the phase of compulsory education, public schools are mainly financed by the government, while private junior high schools and elementary schools must finance themselves. In phase

of non-compulsory education, most government funds are appropriated for public schools, and only a small part goes to private schools in the form of subsidy. Most funds of private schools come from tuition and miscellaneous fees. About 80 percent of the funds for such an education finance system were from the government. Prior to 1997, the government appropriated education funds were ensured by the 164th provision of the constitution that educational, scientific, and cultural funds would account for no less than 15 percent of the whole budget of the central government, and no less than 35 percent of the whole budget of a city or county. In 1990, funds on education, science, and culture reached for the first time to the lower limit of 15 percent prescribed by the constitution. After that, funds on education in Taiwan increased rapidly and peaked in 1993.

During this period various education programs were put forward, and new institutions and schools (especially of higher education) came into existence one after another. Education cause began to flourish. In recent years, however, investment in higher education has been obviously inadequate. The expansion of higher education has brought about a heavy financial burden. And the government's ability to support higher education continues to decline. The proportion of funds raised by schools increases every year.

Education Policy

The rapid economic development of Taiwan is to some extent attributed to the strong support of higher education, while the development of higher education is in some degree benefited from policies which standardize the development of higher education.

Peng (2001) reported that the reason why Taiwan can create such a well-known economic miracle with limited territory and natural resources lies in its favorable education policy, which is critical in manpower cultivation. We all know that successful human resources are a main driving force for the economic development.

After Kuomintang retreated to Taiwan, it first put the “counterattack and restoration” education policy into practice (Xu, 2001). Chen (1999) held that there has been a great change in Taiwan’s education policy since curfew was lifted in 1987, especially after the university law amendment was promulgated in 1994. Since then, higher education in Taiwan has entered into a new phase of diversity and independence.

“White Paper on Taiwan College Education Policy” promulgated in December 2001, pointed out the development strategy of current college education in Taiwan: (a) medium and long development project of college education which is now in research; (b) to impel universities to position themselves through offering reasonable flexibility; (c) to improve both capacity and quality of college education; and (d) to rationalize fund-raising and

distribution of college education.

At the same time, it also indicated future prospects of college education in Taiwan:

(a) establish an open and competitive access to education; (b) strengthen the independent operating mechanism of universities; (c) establish an elastic channel to manpower cultivation; (d) cultivate further improvement and application of scientific and technological talents; (e) enlarge the opportunity of adult participation in receiving higher education; (f) adjust the distribution and application of education resources; and (g) pursue academic prominence in universities.

In general, the direction of reform for education in Taiwan is “to loosen the bondage on education, foster every student, open entrance channels, improve education quality, and build up a life-long learning” (Yu, 2001).

Problems after the Entrance to the WTO

After its entrance into the WTO in 2002, facing the competition and challenge of internationalization and globalization, higher education in Taiwan encountered ever-increasing pressures. Zeng (2002) believed that pressures facing higher education in Taiwan were mainly from the following two aspects:

1. Pressures from overseas. According to Taiwan's promises when it entered the

WTO, accredited universities in Europe and the United States can recruit students and confer degrees through establishing a campus branch in Taiwan or through cooperating with local universities of Taiwan. If famous universities in the world enter Taiwan in such ways to recruit students, they will bring out appeal which is not able to be underestimated, especially for Taiwanese students who possess a better economic condition. In such a case, it provides more options for students. At present, there is not a foreign university to open its campus branch directly in Taiwan, but there have been several programs recruiting students through the cooperation between foreign universities and universities of Taiwan. The most struck field of higher education in Taiwan involves universities and research institutes, especially private ones. In such a circumstance, universities or colleges of Taiwan need to work hard to set their own characteristics to recruit students and keep them.

2. Pressures from Mainland China. The economic development in Mainland China is going upwards in recent years. Having the large population and land, Mainland China is a developing market with great potentials in the era of globalization. Since it could provide the sources of cheaper labor and land, many Taiwanese industries moved to Mainland China to continue sustainable administration for

benefits, especially those labor-intense ones. Simultaneously, Taiwanese investments on Mainland China keep increasing, which results in more and more Taiwanese people working there. For the prospects of future career development in Mainland China, there have been students from Taiwan who go to study there. Certainly, such factors as no language barrier and much cheaper living expenses and tuitions in Mainland China have caused the number of Taiwanese students who pursue studies in Mainland China to ever increase. After both entities enter into the WTO, it is inevitable for Taiwan authorities to acknowledge degrees conferred by Mainland China. Until that time, the number of students who pursue their studies in Mainland China will increase more, and this will have a strong impact on higher education in Taiwan.

How to improve the international competitive edge of universities in Taiwan and how to deal with the impact of joining in the WTO have now become the most pressing needs facing higher education in Taiwan. Deng (2002) worried that under the double influence of continuous increasing of institutes of higher education and decreasing youth population, higher education market has now become saturated. Nowadays, a minority of vocational and technical schools have already faced the predicament of insufficient

students. If Taiwan allows foreign countries to establish private universities in Taiwan after entrance into WTO, the competition in higher education market will become ever-increasingly intense. Those who cannot improve their competitiveness will face a serious shortfall of students, and some of them will be eliminated by the market.

In order to improve competitive strength of higher education in Taiwan, “the Ministry of Education” of Taiwan, aiming at impacts after entrance into the WTO, suggests various ways to improve competitive strength of universities through encouraging college combination, coalition and arranging new college system (Deng, 2002). However, it is found that it is debatable whether coalition and combination of universities can improve competitive strength and quality of higher education in Taiwan (Wang & Wei, 2002). They are worrying that “the case for education is still the same, while consumers ever increase; therefore, it is unlikely it is possible solve the problem of resources shortage through combination and coalition.”

Current Higher Educational System in Mainland China

The start time for describing the current higher educational system in Mainland China is 1977. A higher educational system in Mainland China has been developed. The characteristics of the system are as follows: an established scale, diversified forms,

various levels, a complete set of branches of study, ever-increasingly reasonable overall arrangement. (Xu, 1999)

Higher education in Mainland China consists of general higher education and adult higher education, as seen in Table 4.1. General higher education can be divided into the following three phases: junior college education (length of schooling two to three years), undergraduate education (four years), and graduate education (including master degree and doctoral degree). The current adult higher educational system includes: (a) radio and television university which offers courses by means of radio and television transmission; (b) employee college which offers courses mainly for workers; (c) peasant college which offers course mainly for agricultural people; (d) administrative cadre college which is for the administrative level to study; (e) continuing education college which is for preparing students to be qualified to get the certificate via the national examination of some specialties; (f) independent correspondence college; (g) correspondence school, night university and cadre specialty class held by general institutes of higher education. In 1999, there were altogether 871 adult institutes of higher education, with 3.05 million students on campus (Yang, 2001).

Xiao (2000) divided institutes of higher education in Mainland China into four types according to subject setting: comprehensive subject university (with more than 7

Table 4.1*Current Structural System of Higher Education in Mainland China*

General Higher Education	Adult Higher Education
1. graduate education (graduate class, master, doctor)	1. radio and TV university
2. university and college (bachelor, undergraduate, secondary bachelor)	2. employee college
3. junior college and vocational and technical college (vocational university)	3. peasant college
4. branch school and junior class of university	4. administrative cadre college
	5. education college
	6. independent correspondence college
	7. correspondent school and night university held by general institutes of higher education

Note. Note. From “Current Structural System of Higher Education in Mainland China,” by China Net, June 24, 2002. Retrieved February 11, 2003, from <http://www.china.com.cn/chinese/zhuanti/163877.htm>. Other Types include military academy, examination system for self-study of higher education, school run by local people as an experimental diploma examination place, institutes of higher education run by local people, preparatory school and self-study guidance class, religious school, and school for foreign students.

first-level subjects including society, human culture, nature, and engineering), general subject university (with more than five first-level subjects including economics, law, literature, science, engineering), multi-subject university (with more than three first-level subjects, chiefly science, engineering and society with other subjects in a supporting role) and single subject university (only one main subject).

Management Mechanisms

In the past, the administrative system of higher education in Mainland China was one in which schools were funded, run, and directly administered by various departments and committees of the central government (commonly called “bar”) and provincial governments (commonly called “block”) according to national plans. But this system gradually evolved into isolated (by “bars” and “blocks”) and separate patterns, which developed in isolation. (Ji, 1997) Su, Lei and Chang (2000) believed that this administrative system was in agreement with the planned economic system at that time in Mainland China. However, with the ongoing of economic reform in Mainland China, defects of this administrative system “partitioned by bar and block” became more and more obvious.

In 1993, Mainland China was bold to push forward the gradual reform on

administrative system of higher education and put forward a “co-build, adjust, cooperate, and combine” policy. It changed department school administration system formed under planned economy into another in which the administration of a majority of institutes of higher education was transferred to the lower level of each province, city, and autonomous region. As Zhou (2002) stated, there were altogether 367 institutes of higher education directly administered by the State Council. After reform, there were about 110 left.

Cai (2002) claimed that there are altogether 1, 225 general institutes of higher education in Mainland China, among which 71 are directly under the Ministry of Education, 40 are directly under a few special departments of the central government, and the rest 1, 114 are all local universities.

Reform of the administrative system of higher education in Mainland China transfers the examining-and-approval right of higher vocational colleges and junior colleges, and the recruitment planning right of junior college education to provincial governments to improve the independence of institutes of higher education. This overcomes defects such as “bar and block” separation, repetitious school administration, and resources waste. As a result, a new system in which higher education is mainly administered by provincial governments has basically come into being. This new system

stimulates the enthusiasm of local governments and all social circles to develop higher education, tightens the connection between institutes of higher education and the regional economic and social development, and promotes institutes of higher education to better serve local economic and social development. Therefore, it has a strategic significance for the development of higher educational business in Mainland China (Zhou, 2002).

Student Recruitment System

Pan (2002) pointed out that the unified examination system in Mainland China, beginning from 1977, has had a decisive effect on the recovery of the then devastated education sector and the supply of human resources for the economic recovery.

In order to make the college entrance examination helpful to student selection by institutes of higher education, quality education in high school, and improvement of independence of school-administration of institutes of higher education, Mainland China put forward a subject reform proposal, “3 + X” (see below), of the college entrance examination and put it into practice in 2002. Because of the need for quality education, more importance is attached to ability checking on the basis of knowledge checking. Mainland China also began to carry out spring entrance examinations in some regions for experiment. Meanwhile, China also realizes cyber-recruitment with the application of

modern communication technology, and thus improves efficiency and better embodies the principles of equality, impartiality, and transparency. (Chen, 2002)

Zhong, Wang, & Zhang (2001) introduced that 3 in “3 + X” refers to Chinese, mathematics, and English, and they are the compulsory subjects for every examinee. X refers to the examination in which the subject matter is determined according to examinee’s will for college and usually one or several subjects are chosen from physics, chemistry, biology, politics, history, geography and a general subject. Compared with previous entrance examination schemes, “3 + X” are more open, self-determined, selective, and expansive.

Zhou (2002) held that with the continuous ongoing reform on the college unified examination system since 1998, “one examination for whole life” in Mainland China college entrance examination has been broken down. Students now have more choices for personal development.

In 1998, institutes of general higher education in Mainland China recruited altogether 1,083,000 students. This can be seen in Table 4.2 below. In 1999 it increased 42 percent to 1, 530, 000, nearly 450, 000 more than the previous year. Moreover, adult higher education recruitment increased 100, 000 students, and recruitment for graduate students increased 3, 900. The actual entire recruitment scale

approached 2,700, 000, if television universities, local-run universities, and other types of higher education were included. There were altogether 7, 422, 000 graduate, undergraduate and junior college students on the campuses, 992,000 more than the previous year. On this basis, institutes of higher education extended recruitment scale again in 2000. General institutes of higher education actually recruited 2, 200, 000 students, 44 percent more than the previous year. (Yang, 2001).

Recruitment expansion is in complete accordance with the collective demand for higher education cause by the social development of Mainland China. In order to keep quality from falling after expansion, on one hand, Mainland China increases its investment on higher education to provide hardware guarantee for improvement of teaching quality. On the other hand, it makes new policy, deepens teaching reform, adopts advanced teaching method, reform teaching contents, and makes further efforts to ensure education quality (Liu, 2002).

After the three year recruitment expansion, as shown in Table 4.3, students on the campus of institutes of higher education in Mainland China rose from 6.43 million in 1998 to 12.14 million in 2001. The net increase was 5.71 million students. (Institute of Shanghai City Education & Science, 2002).

Table 4.2

Recruitment Expansion of Institutes of Higher Education
in Mainland China from 1998 to 2001

Index	Year:			
	1998	1999	2000	2001
Recruitment of undergraduate ^a	108.3	153.2	220.4	268.4
Recruitment of junior college ^a	100.2	122.3	156.4	185.4
Recruitment of undergraduate & junior college ^a	208.5	275.5	376.8	464.2
High school graduate ^a	521.0	546.7	602.1	709.1
Entrance rate of high school graduates ^b	40.0	50.4	62.6	65.5

Note. Data of 1998-2000 were taken from *Statistical Almanac of Education Cause in China* of corresponding years; data of 2001 were from *Statistical Analysis of Education Cause in China in 2001* by Planning and Developing Sector of the Ministry of Education.

^a (10 Thousand). ^b(%).

Table 4.3

Scale of Students on the Campus of Institutes of Higher Education
in Mainland China from 1998 to 2001

Index	Year			
	1998	1999	2000	2001
Students on the campus ^a	6.43	7.42	9.40	12.14
Graduate students ^a	0.20	0.23	0.30	0.39
Undergraduate students ^a	2.58	3.21	4.12	5.35
Junior college student ^a	3.65	3.98	4.98	6.40

Note. Same as Table 4.2. ^a (million).

Reforms on the Tuition System

As part of the planned economy, higher education in Mainland China adopted the “welfare system”, charging no money from students. Funds of higher education depended on national finance investment. Since the opening-up and reform, with the continuous development of the market economy and the country’s increase demand for talents, national finance investment could not meet the need of the development of higher

education. Therefore, Mainland China changed their charging system for higher education. National finance on all level and students shared the burden to make up the inadequacy of fund of higher education. (Yang, 2001; Bray & Borevskaya, 2001) From 1989 Mainland China began to charge tuition in higher education. In 2002, the tuition for an undergraduate per year in Mainland China is 500 – 750 US dollars, which is much lower than 1,500 – 3,000 US dollars in Taiwan (XinHua Net, 2002; Wund).

Yang (2001) analyzed that in the latter half of the 1990's, Mainland China took higher education as an effective measure to enlarge domestic demand and enhance education consumption. This triggered the recruitment expansion of institutes of higher education on a large scale and heightened college tuitions. In order to keep economically disadvantaged students from dropping out of school, Mainland China developed a series of policies and measures to assist them since 1987, which chiefly include the policies of the five contents such as “award, loan, aid, subsidy, and reduction”, as well as national study loans, education deposits, and an education insurance system. Among which, national study loans greatly lessened students' economic pressure during study through allowing them to pay back all the principal and interest in a certain period after graduation, and thus became the most important problem-solving method.

Enhancing Construction of the Important Universities

Since 1992, the Education Committee of Mainland China has begun to carry out the “211” project. The numbers 21 and 1 refer to 21st century and 100 institutes of higher education, respectively. In order to enhance national economic construction, scientific and technological and cultural development, comprehensive national power, and international competitiveness in 21st century, China lays stress on the construction of about 100 institutes of higher education and the development of a number of keystone subjects. At the end of 1995, 15 institutes of higher education, including Tsinghua University and Beijing University, were confirmed to be among the members to enter the “211” project. At the beginning of 1998, the Ministry of Education established the project of “reviving education in China in the face of 21st century”, ensured by appropriated funds by the State Council. It also proclaimed to construct Beijing University and Tsinghua University respectively with 125 million US dollars invested every year within following 3 years in order to build them into high competitive world first class universities. At the same time, the policy of joint construction by the Ministry and local governments was adopted to construct Shanghai JiaoTong University, Fudan University, Nanking University, Harbin Industrial University, and Zhejiang University.

(Yang, 2001)

Development of Privately-owned Institutes of Higher Learning

In 1949, there were altogether 205 institutes of higher education in Mainland China (military schools included), among which 84 were private ones, which accounted for 41 percent of all the institutes and whose students on the campus accounted for 26.9 percent of all the students. After the foundation of the People's Republic of China, under the influence of the planned economy and the Soviet teaching pattern, private universities were gradually taken over by the country, and merged and turned into public universities from 1952 to 1956 (Yu, 2002).

Cai (2002) showed that the development of the market economy in Mainland China after the economic reform has led to the tendency of diversification of needs, school-administration actors and forms, which strongly calls for the development of private education institutions.

In 1992, the 14th CPC Congress pointed out to “encourage social fund-raising administration and local administration of schools through various channels and in various forms in order to change the practice of all state-administration of education.” In 1999, the third national education meeting of Mainland China further brought forward the policy to “establish the pattern of co-development of public and private schools with

government-run schools as the principal part.” After that, private education stepped into the phase of accelerated development. At the end of 2001, there were more than 1200 institutes of higher education run by social strength, with 1, 130, 000 students enrolled. Among them, 89 have the qualification to confer diploma approved by the Ministry of Education or provinces (regions and cities) authorized by the Ministry of Education, with 150, 000 students on the campus (Chen, 2002.)

Although private institutes of higher education have developed considerably, their size is rather small and short of independent management. Although there are 1200 institutes of higher education run by social strength, among which only 89 have the right to confer diploma authorized by the Ministry of Education in 2001. Therefore, private institutes of higher education are, on the whole, not “private” in the real sense (Zhang, 2002).

Problems after the Entrance to the WTO

The benefits which entry into the WTO brought to higher education in Mainland China are obvious: (a) Change into investment competition widely participated by society instead of sole investment of government; (b) gradual fostering of the market of educational business, and scientific and technological industry; (c) beneficial learning of

information from foreign countries the advanced management experience and technology;

(d) enhancement of development of education with increasing social demands for talents;

(e) increasing scientific and technological contents of products brought about by the economic globalization participated by corporations drive institutes of higher education and research institutes to actively step into the main arena of economic construction (Xu, 2001).

However, higher education in Mainland China also faces following critical challenges after entry into the WTO (Bai, 2001; Feng, 2002). They are:

1. Allowing foreign education agencies to open branch campuses and programs will inevitably have a strong impact on the current educational system in Mainland China.
2. After entry into the WTO, the demand for talents, especially for high-level administrators and research personnel, will ever increase with the economic development. How to increase the education capacity of schools to solve the problem of serious inadequate support of education for social demands will become a real problem in front of Mainland China.
3. "Entry into the WTO" will trigger the international flow of talents. It is

helpful for the introduction of foreign talents, and it also can lead to loss of senior talents of Mainland China to foreign countries as well.

4. There is increased pressure from the entry into the WTO for China to reform higher education.
5. After entry into the WTO, subject setting of institutes of higher education in Mainland China will be affected, which will bring about the structural change of education and its talent cultivation.
6. Entry into the WTO poses a new challenge for the backward “long-distance higher education” in Mainland China.

Strengths and Weakness, Similarities and Differences of Each System

This section explored characteristics and defects of higher education in both Mainland China and Taiwan and then compared these two higher education systems.

Characteristics of Higher Education in Taiwan

1. Developing higher education rapidly

In 1950, there were only 4 universities throughout Taiwan. Till 2000, there were already 24 junior colleges, 74 colleges and 53 universities on the land of only 36,000

square kilometers (see Table 4.4). The number of colleges and universities increased rapidly especially after 1990; and it reached 143 in 2001(Deng, 2002) and 148 in 2002 (Zhang, 2002). Xie (2001) believed that generally speaking, higher education in Taiwan developed much faster than that in Mainland China. These institutes of higher education have had an immeasurable boost on Taiwan's economic soaring development.

2. Attaching importance to vocational education

In Taiwan's economic development history, vocational and technical education is acknowledged as the main factor for creating such an economic wonder. Meanwhile, the rapid economic development, scientific and technological advances, demands of social change, and psychological demands of students' patriarchs have all enhanced the transformation and

In 1974, the first vocational and technical university was founded in Taiwan, which established the policy of two-track development of general universities, and vocational and technical education (Yang, 2000). Vocational and technical education in Taiwan is divided into vocational school, junior college, and technical college and university of science and technology. Junior college, technical college and university of science and technology are commonly classified into higher vocational education.

As shown in Table 4.4, most of junior colleges were upgraded to the level of technical college or university of science and technology, and only 4 left in 2002. development of vocational and technical education (Gong, 1998.) Higher vocational education in Taiwan consists of junior college, undergraduate, and graduate education. Vocational and technical education cultivates not only middle-level technical workers for urgent social and economic needs, but also practical junior college and undergraduate senior technical and administrative talents to contribute to the economic development. More uniquely, there are also cultivation systems for master and doctoral degrees. Technical colleges on this level recruit graduates from senior vocational and technical schools. Students are conferred bachelor's degree upon graduation after 2 to 4 years of schooling. This kind of school mainly teaches applied subjects and technology to cultivate practical technical workers. Because competition for entrance into such schools is not so intense as that at universities, many students enter themselves voluntarily to such schools. Taiwan's energetic push on vocational and technical education is quite effective. It has a strong effect on the improvement of population quality and the rapid economic development. (Lin, 1995).

3. Private schools taking up a large proportion of higher education

Private education is an important method used to speed up the development of

education in Taiwan. Yang (1996) pointed out that private education in Taiwan can be dated back to the middle 1950's. Xia (2002) argued that private schools in Taiwan develop rapidly with a developed market economy. Except for elementary schools and junior high schools that are mainly run by the government, social communities and individuals are encouraged to run schools at other phases of education. In order to bring private schools into the track of lawful construction, Taiwan promulgated *Private School Law* and revised it in 1996. Wang (2002) held that another reason why Taiwan speeds up the development of private schools is that the rapid development of education cause creates a heavy financial burden on fund-raising, which will inevitably affect the development of education cause if only public schools sustain education. Therefore, authorities in Taiwan adopted the policy of combining government and local-run education together and encouraged individuals to run schools. Private education thus developed rapidly.

Since there has been a long history of the establishment and management of private schools in Taiwan, the legalization and standardization of school management becomes more and more mature (Xia, 2002). In 2000, there were 127 universities and colleges in Taiwan (military, police, and air universities not counted in), among which 78 are private ones. There were 408, 030 undergraduates, 20, 626 master students, and

Table 4.4

The Number of Institutes of Higher Education in Taiwan from 1950 to 2002

Academic year	Junior college	Independent college	University	Total
1950	3	3	1	7
1955	5	6	4	15
1960	12	8	7	27
1965	35	11	10	56
1970	70	13	9	92
1975	76	16	9	101
1980	77	11	16	104
1985	77	12	16	105
1990	75	25	21	121
1991	73	29	21	123
1992	74	29	21	124
1993	74	30	21	125
1994	72	35	23	130
1995	74	36	24	134
1996	70	43	24	137
1997	61	40	38	139
1998	53	45	39	137
1999	36	61	44	141
2000	24	74	53	151
2001 ^a	9	143		152
2002 ^b	4	148		152

Note. For convenience and the accurate presentation of ebb and flow, from 1950 to 1985 every 5 years are presented together as one group, while after 1990 each year is presented as one group. From “*Exploring questions of rapid expansion of Taiwan higher education by economy views*,” by Z. Y. Iv, & T. L. Peng, 2001, November 28, Paper presented at the 2001 Symposium on the Higher Vocational Education of the Two Sides of the Strait.

Retrieved July 18, 2002, from <http://www.tech.net.cn/research/intro/a/17.doc>.^a From "Elementary introduction of the impact of Taiwan's entrance to the WTO: Pounding on Taiwan higher education," by J. H. Deng, 2002, *Deep News Analysis - Taiwan Jingyi University*, 93, 23-28.^b From "Challenges from WTO's pounding and the strategies for higher education to cope with," by S. Q. Zhang, 2002, *Higher Education Science & Engineering Research of China*, 5, 41-45.

1,854 doctor students on the campus of private universities in 2000. The total is 430, 510, which accounts for 58.8 percent of all the college students in Taiwan in 2000 (Huang, 2001).

4. Attaching much importance to education legislation

Taiwan education legislation has the following characteristics:

After 1949, comprehensive laws were developed in Taiwan regarding the administration of higher education to various aspects of college education, from junior college education to normal education, from postgraduate education and degree conferment to private school running. Some of them have been revised more than one time according to new situations. For instance, University Law promulgated in 1948 underwent 4 revisions in August, 1972, in April, 1982, in July, 1982, and in January, 1994, which had an important role in the development of higher education in Taiwan. Therefore, Taiwan education legislation shows the characteristic of large scale,

stability, continuity, specialty, and forward looking (Yang, 1996).

The second characteristic of education legislation is the compatibility of education legislation with the economic and educational development. Wang (2002) reported that education legislation followed situations; the different economic and educational development requires different education legislations. In the preliminary development phase of education, education legislation was low level and of small scale. In the phase of high-speed development of education, new legislation and revision of old education law involved nearly all the aspects of education. In the phase of education adjustment and reform, education legislation has a tendency to perfect the legal system and improve the legislation quality.

The third characteristic of education legislation is systematic and complete. The current education specified laws involve all the education rules of law from infant education to postgraduate education and from standard education to spare-time education. Virtually, there is a particular law for each education level. The completeness of education rules of law also manifests in the education law system, which is made up of parent law, department law, ordinance, regulation and detailed rules for practice. Therefore, an educational law system from the “constitution” to educational law at all levels and from ordinance, regulation and detailed rules for

practice to course standards for schools at all levels has come into existence (Wang, 2002).

Disadvantages of Higher Education in Taiwan

In recent years, higher education in Taiwan has developed rapidly in terms of quantity, but quality of higher education has not increased with it.

1. The scale of higher education is smaller

Deng (2002) believed that there are too many institutes of higher education in Taiwan on small of a scale. There were 143 colleges and universities in Taiwan until September, 2001, with less than 20 having more than ten thousand students on campus. The average number of students is 5,000. The scale of schools was not in agreement with economic profits in order to achieve the objective of “complete education.”

2. Colleges and universities are densely located, and the level is uneven

University density in Taiwan tops all the other countries in the world. For example, Australia has a smaller population and a land area 200 times bigger than Taiwan's, but it has only 38 colleges and universities, around one quarter of Taiwan's. University scale there is large with more concentrated teaching troops and equipment, and the average quality is much higher. In comparison, although the quantity of

universities in Taiwan is large, the quality difference among universities is also big (Zhang, 2002).

3. Less funds

Chen (2001) showed that decreased funding for higher education in Taiwan makes people worried and anxious. He stated that after the curfew was lifted, the number of institutes of higher education dramatically increased, and is now nearly three times the number than the 50 in 1991. The number of students has also increased continuously, while the government fund invested in higher education has decreased each year. In the past decade, subsidy for each student in state-run universities was reduced 20 percent. Taiwan ran counter to international practice during this critical period when other countries made full efforts to develop keystone universities.

4. Lower competitiveness

On one hand, student's aptitude decreased daily. Study motivation, attitude, and language capability of students in Taiwan are far less than students of other Asian countries. On the other hand, its scientific research achievements have dropped behind. According to data from *Competitive Strength of All the Countries in the World in 2000* publicized by Lossan Administrative College in Switzerland, Taiwan fell from number 7 in 1998 to number 12 in scientific achievements, among which the most indicative

index of “fund for research and development fell to number 19, and “fundamental research” dropped far behind Mainland China (Zeng, 2002).

5. Rapid development of institutes of higher education

The number of institutes of higher education in Taiwan keeps increasing at high speed. In 2002, there were 148 colleges and universities, about three times that of 1990. The net rate of students in colleges and universities of the population aged from 18 to 21, exceeding 42.5 percent, higher than that of a majority of European and American countries. The popularization of higher education leads the world, but it also faces a lot of problems, such as an inadequate supply of teaching personnel, more and more intense competition for student sources, ever-decreasing funds each year, difficult employment of graduates, and huge outflow of talents (Zhang, 2002).

Liao (2002) reported that the quantity of institutes of higher education in Taiwan has already exceeded demand of student sources. Moreover, the birth rate in recent years has also dropped; therefore, lack of students for institutes of higher education in Taiwan has become obvious. With the continuously depressed economy of Taiwan, “graduation means unemployment” gets verified; about 68% of this year’s graduates of 2002 were still in unemployment, having left the campus for almost three months.

Unemployment of college graduates is mainly due to specialties of college

graduates failing to meet the needs of the market. The most important work of adjusting the college departments in Taiwan is to follow the leading trend of needs of the market. It is necessary to establish popular departments with the expansion of student recruitment for supplying suitable human resources to the market. In the era of the knowledge economy, the half-life of knowledge becomes shorter than before. Education not only needs to grasp the pulsation of the market but also have the vision of prospects. It must be able to anticipate human resources required in the coming 5 years or 10 years. It must go ahead of the pace of the market in order to have talents fully employed and lead the development of industries. Certainly, the function of education is not limited to economic nature. It also plays a role of carrying out multiple goals, such as humanism, academic research and service and so on. Therefore, the needs of the market cannot overtop everything (Xu, 2002).

Characteristics of Higher Education in Mainland China

1. A relatively complete and mature higher educational system

Zhou (2002) stated that since the opening-up and reform, five major system reforms have taken place in higher education in Mainland China: school administration system reform, recruitment and employment system reform, fund

investment system reform, interior administrative system reform within schools, and administrative system reform. The current operating system and mechanism of institutes of higher education have undergone fundamental changes.

Yang (2002) claimed that up to now the reform on higher educational system in China has gained a historical breakthrough, such as:

- (a) The diversification of the educational administration of schools. School administration pattern has changed from single administration by the state and government into the pattern of “one principal and many entities.” One principal refers to state administration, while many entities refer to energetically developing local-run education, private education, corporate education, mechanism transformation of public institutes of higher education, and joint school administration through cooperation with foreign countries.
- (b) Diversification of education forms. There are many kinds of school administration patterns, such as full-time and part-time institutes, and general institutes of higher education, higher vocational college, adult institutes of higher education, self-study examination, and so on.
- (c) Diversification of education objectives. According to different social needs, different types of institutes of higher education cultivate different types of

talents, such as theoretical, applied, technical, and administrative ones.

(d) Diversification of and lack of conformity in education content. There are

different curriculum objectives for different subjects and specialties. Even in the same specialties, teaching content in different school varies.

(e) Diversification of cultivation pattern. Teaching methods include imparting,

discussion, research, course lecture on a particular subject, case study, and so on.

2. Emphasizing fundamental education

Higher education teaching in Mainland China has always attached importance to fundamental education. Therefore, advantages of higher education in Mainland China lie in college students' firm grasp of basic knowledge. In recent years, contestants from Mainland China often came out top in international Olympic contests on mathematics and physics, and some of them even topped all the other students (Sun & Zhou, 2002).

In recent years, institutes of higher education in Mainland China, especially some prestigious universities, have adapted to the opening-up and reform, made exploitations and innovations, and put forward new requirements for the cultivation of talents. While attaching importance to fundamental education, they put more emphasis on the communication between liberal arts and science, and the expansion of horizon

on interdisciplinary knowledge. There is also no specialty classification in low grades of undergraduate students, which put forward a much higher standard for fundamental education.

3. An abundant and quality source of students

Current higher education in Mainland China is in the transitional period from elite to ordinary students. With such a big population, there are many students qualified for higher education each year. Although Mainland China has continuously enlarged its recruitment scale since 1999, only a minority of those qualified can enter universities. Wen (2001) held that there are about 50% of junior high school graduates every year who fail to pass the examination for entering senior high schools. As shown in Table 4.2, even in the period of the expansion of the student recruitment from 1998 to 2001, the entrance rate to college for senior high school graduates through the examination were 40.0% to 65.5%. Both competitions for senior high school and for universities can be compared to be “a large number of mounted and foot soldiers get through a one-plank bridge.” Therefore, qualities of enrolled college students won’t be low.

Moreover, unlike recruitment in Taiwan, higher education in Mainland China adopts the policy of “strict entrance and easy graduation”. After layers of examinations

and elimination through selection, students who can enter a college are those better ones in all round aspects. Students in keystone universities are more elite, nearly one selected from a hundred. In sum, it is certain that college students in Mainland China have higher qualities than those in Taiwan.

4. A unique and pioneering self-study exam system

The Self-study Exam of higher education is one of the national examinations of Mainland China. It is mainly focused on the examination of educational qualifications. It is designed and held for self-study individuals to take. It is a form of higher education, combing the individual self-study, the social aid and the national examination together. The way for such examinees to learn is mainly self-study. According the needs, they can look for help and instruction via radio, television, correspondence, and audio-video etc. The subjects for the Self-study Exam are determined by the government in accordance with the needs of the economic construction and the social development. The requirements for achieving each level of educational qualifications are the same as those required for general higher education. The examinees passing this national examination will be conferred the correspondent degrees or certificates. Mainland China practices the degree system for such a national examination, including Bachelor, Master, and Doctorate. Liu (2001)

The Self-study Exam System in the Mainland China was established to meet the needs of modernization after the reform and opening-up and has been developing gradually. On June 7, 1981, Beijing held the Self-study Exam for Philosophy. Because of the flexibility of this new exam form, there is no limitation for taking this examination but high quality is ensured by a strict management system; majors to be examined meet the need of society. By the year of 1985, 29 provinces and cities had begun the Self-study Exam System (Zhou, 2001).

The Self-study Exam in Mainland China breaks through the form of traditional higher education, with the low cost, wide coverage, good social and economic benefits; gains people's recognition and acceptance, and becomes a somewhat common education and studying form (Xie, 2000).

Liu (2001) thought the Self-study Exam is a very good innovation in the Mainland China's higher educational system and is a very important way to popularize higher education. It is also the most unique systemic innovation in the twenty years since the reform and opening-up and a great contribution of the Mainland China's higher education to the world higher education.

Disadvantages of Higher Education in Mainland China

1. The higher educational system is on small scale on the whole

The total scale and scope of higher education is very limited and can not adequately meet the need of all walks of society and the needs of ever-increasing number learners.

The Institute of Shanghai City Education and Science (2002) reported that up to the end of 2001, there were only 1,225 institutes of higher education in Mainland China. As shown in Table 4.3, there were only 12.14 million students on campus in 2001, a far cry from the 4000-plus universities and 14.5 million students on campus in the United States. Considering that the population of Mainland China is about five times that of the U.S., the gap between them in the number of institutes is much wider. Yang (2001) thought that since the year 1999, higher education in Mainland China has enlarged its enrollment and its scale has become greater.

If continued at today's development speed of higher education and enrollment scale, by 2005 students on campus in Mainland China will exceed 16 million. With this figure, Mainland China seems to be one of the countries whose education is well developed, but if the number of students on campus of higher education in every 100,000 population and the enrollment rate of youths of the right age to higher

education are taken into consideration, Mainland China shows a different story. For example, in 1995 among every 100,000 people, the average number of students on campus of higher education was 1,434 in the world, 4,110 in the developed countries in Europe and America, 824 in the developing countries, while only 461 in Mainland China, which was less than 800 of East Asia and Pacific area, and 610 of South Asia. Also in 1995, the average enrollment rate of youths of the right age to higher education was 16.2% in the world, 59.5% in the developed countries in Europe and America, 8.8% in the developing countries, 3.2% in the least developed countries. Even surveyed according to the statistics in 2000, the enrollment rate of youths of the right age to higher education in Mainland China only reached 11.5% (see Table 4.5) With the two indexes, it is obvious that there is still a long way for Mainland China to strive for the development of higher education.

2. Unbalances among areas of development of higher education

Colleges and universities are crowded in several big cities, and the government has failed to adjust and improve the distribution according to the development of the local economy after the reform and opening-up (He, Fang, & Bo, 2002). At present, the lay-out of colleges and universities is that the eastern area and central areas are at a superior position and the western area an inferior position. In fact, either the eastern

area or the central area has much more population than the western area. After the management reform of colleges and universities since 1998, among the 367 colleges and universities under the administration of the central government, 256 have gone under the rule of the local government. Most of them are in the eastern and central areas, which makes the imbalance among the development of higher education worse. Because of the unevenness in the enrollment, students on campus of higher education in the western area only take up 21.4% of the whole country, much lower than 47.1% of the eastern area. In 2000, the absolute margin of students on campus of higher education between the western and the eastern area are 12.3 in every 10,000 population. The west is faced with both the lack of colleges and universities and the drain of “excellent” high school students to other areas (Li, 2001).

Huang, Shao and Wu (2002) reported that the imbalance of local economic development will inevitably lead to the imbalance of the development of education, which is not only the direct consequences of the imbalance of economical development, but also the root cause of the continuous deterioration of the imbalance of the economic development. Therefore, they concluded that, in the long run, to solve the imbalance of economic development, it is necessary to solve the imbalance of the education development.

Table 4.5

The Number of Students on Campus in Every 100,000 Population and the Enrollment

Rate of Youths of the Right Age to Higher Education in 1995

	1995	
	The number of students on campus	The enrollment rate of youths of the right age (%)
Average in the world	1,434	16.2
Developed countries in Europe & America	4,110	59.5
Developing countries	824	8.8
East Asia & Pacific	800	-
South Asia	610	-
Least developed countries	-	3.2
Mainland China	461	11.5 ^a

Note. Tabled from “To further promote the international competitiveness of China higher education,” by Z. J. Yang, (2001), *China Higher Education*, 12, 23-25. ^a 11.5% was the figure surveyed in 2000.

3. Adjustment of management mechanism lagging behind

With the economic development, a mode of “centralized direction, stratified management” has been formed for the present higher education management mechanism of Mainland China. Zhang (2001) held that in the actual management the mechanism has encountered difficulties in the coordination of centralized direction and in the giving authorization of the stratified management. He also showed that the educational managing activities from top to bottom have met many problems, such as the grade-skipping managing manners, the lack of policies and regulations, and the inefficient implementation of the regulations.

From the present educational management system, it is evident that the central government has the biggest power over the management of higher education and relevant decision-makings. The central government and the local governments implement a stratified management of the educational institutions. In fact, this kind of management mode has not broken away from the mode of administrative centralization of state power formed under the planned system, and the “affiliation” and “dependency” of the schools remains unchanged, so that the nature of the schools is not an “autonomous entity”. For example, the functional government institutions interfere with the educational activities of the institutes of higher education in their

teaching practice, scientific research activities, and the conferment of diplomas, etc.

(Zhang, 2001).

4. Expansion of student recruitment and job scarcity for graduates

From 1999 to 2001, the institutes of general higher education in Mainland China witnessed consecutive expansions of the student recruitment at the rate of 42.0%, 43.8% and 21.9% respectively. It was predicted that in 2003 the total number of college graduates will increase to around 1.5 million and in 2004 it will reach around 2.2 million. According to official statistics, in 2000 the rate of successful job application of those postgraduates graduated that year reached 93.6%. The rate of successful job application of all the students who graduated that year from the 71 prestigious colleges and universities monitored directly under the Ministry of Education reached 86.06%; and the rate of successful job application of all the students who graduated that year from various local colleges and universities was about 60%. In 2001, the rate of successful job application of college graduates of that year was about 58%. It can be said undoubtedly that in the few years to come the employment situation is rather grim and severe (Cai, 2002).

It is not an individual phenomenon that people with high educational qualification cannot successfully find jobs, but a universal one. It is concluded that three causes give

account for this phenomenon. First, the labor market is faced with the big change in supply and demand. Mainland China's economy grew steadily in recently years and the job opportunity also increased in the same way, but the number of college graduates increased in a faster way, especially after the consecutive expansion of student recruitment for higher education. In 2003, college graduates from the expansion of student recruitment of 1999 will cause a blowout in the job market, and the pressure of obtaining employment peaks will be unprecedented. Second, the economic structure of Mainland China is unreasonable. This also aggravates the difficulties of obtaining employment of college graduates. The service industry is seen as an effective way for resolving the tough problem of obtaining employment, but because the level of the development of service industry in Mainland China is still much lower than that of the world average and cannot be expected to resolve such a problem in such a short period of time. Third, the concept of job seekers is stagnant. They insist that to study in college or university be about getting a good job after graduation. They rush to potential enterprises offering high rewards and ignore ordinary enterprises. The phenomenon of unemployed college graduates undoubtedly brings about many practical problems. But, if viewed in another way, it is also a result

of the economy developing and can be seen as an important mark of social civilization (Zhuang, 2002).

5. Investment of funds of higher education are unreasonable

In 1998, the amount of funds invested in higher education in Mainland China was about 5 billion US dollars. If these funds were divided among all the present state-run 1,225 general institutes of higher education, each institute would receive an average of about 4 million US dollars. But the fact is that the each of 71 prestigious colleges and universities monitored directly under the Ministry of Education can receive about 6 million to 10 million US dollars every year, and Beijing University and Tsinghua University in the past few years had been invested each an average of around 125 million US dollars every year. That is to say, and Beijing University and Tsinghua University, which only account for 2/1225 of all the institutes of higher education, have enjoyed 1/20 ($125 \times 2 \text{ million} / 5 \text{ billion}$) of all the educational funds of China (Nie, 1999; Cai, 2002).

Considering the lower level of the educational investment of funds in Mainland China, there is a wide gap between the amount of investment of funds in those ordinary general institutes of higher education and some prestigious ones. Therefore, in the aspects of school-administration and introduction of teachers, it is very difficult

for the former to compete with the latter, let alone those disadvantaged private colleges and universities (Zhang , 2001).

Common Features of Higher Education in Mainland China and in Taiwan

Higher education in Mainland China and in Taiwan is an integral part of the Chinese national educational effort. Both have inherited the Chinese educational traditions, and share many common features.

The length of schooling on both sides of the Taiwan Strait is basically identical, implementing the system of “Six-Three-Three-Four”, namely, students go to school at the age of six, and study in primary schools for six years. Then, students move on to spend another three years in junior high schools, and in these nine years students receive compulsory education. The senior middle schools can be divided into three-year senior high schools and three-year senior vocational schools. The junior colleges for professional training, according to the different enrollment qualifications, can be divided into three categories, namely, five-year such colleges recruiting junior high school graduates, three-year such colleges recruiting senior high school graduates, and two-year junior colleges recruiting senior vocational school graduates. Universities and colleges as well as independent institutes generally have a length of schooling of four years, with the

exceptions of normal universities and colleges, whose length of schooling is five years, and medical universities and colleges, whose length of schooling is four years for general departments but seven years for the medical department and six years for the dental department. Those institutes which educate postgraduate students and doctoral candidates have a length of schooling of at least two years (Fang, 2001).

Higher education on both sides of the Taiwan Strait shares some common problems, such as the lack of educational funds, the small size of certain institutes of higher education, the overlap of some departments and branches, the overemphasis on the pursuit of the proportion of students passing the examination to enter schools of a higher grade, the larger number of administrative personnel over that of full-time teachers, the heavy emphasis of the curricula laid on the basics, the narrowness of specialty division, the students' lack of ability in independent observation, and thinking about, analyzing and solving problems, and the impact of the market mechanism on higher education after China's entry into the WTO.

Both sides of the Taiwan Strait are carrying out the reform of higher education in order to solve these problems. But Lin and Huang (2001) believed that higher education in Taiwan faces more problems which are more difficult to solve. The main problems include: the strain of student recruitment source, the diversification of the student source,

the increase in public expense burdens, the difficulty for the schools to raise funds to develop themselves, the qualitative change of higher education, and serious brain drain of higher education after entry into the WTO.

As what Chapman (2000) said, “Across much of Asia, two of the most urgent challenges of the next decade will be to first strengthen and then support school level administration.”

The two sides of the Taiwan Strait attach much importance to higher education. Taiwan authorities overcame many kinds of resistance and in 1968 began to implement the “nine-year compulsory education”. As a result, the cultural and educational level of all the citizens improved. According to the different developmental phases of economic construction, the authorities have unceasingly adjusted the educational structure to vigorously develop higher education. The number of universities and colleges in Taiwan has increased from 4 in 1950 up to 148 in 2002. Higher education has turned out large quantities of excellent personnel in specific fields for Taiwan, who have been playing a very important role in the field of science and technology and the economic construction (Hua, 1999; Zhang, 2002).

Higher education in Mainland China has taken a winding development path, but since the 1990’s, it has obviously speeded up its efforts to popularize higher education.

In 1998 the colleges and universities recruited 1.08 million students, the recruitment in 1999 increased to 1.53 million, in 2000 to 2.20, million, and in 2001 to 2.68 million, thus the gross enrollment rate of higher education increased from 9.8% in 1998 to 11.5% in 2000. In 2001, the total recruitment number reached 2.68 million, with its aim directly at the gross enrollment rate of 15% of higher education, which was generally held as the numerical target of the popularization of higher education (Li, 2002).

From the 1970's to early 1980's, because of the economic construction urgently needed qualified technical personnel, Taiwan vigorously developed vocational education and technical education. At the height of this movement, the number of the students in senior vocational schools was almost twice as many as that in senior high schools. Later, out of the need for senior personnel in specific fields, which was created by the industrial upgrade, people generally hoped to receive higher education, and there were more and more people who desired senior high school education. Taiwan once again made appropriate adjustments to reduce the number of vocational schools and increase that of senior high schools (Fang, 2001).

Since Mainland China has implemented a policy of the reform and open-up to the outside world, besides having general higher education conducted in universities and colleges, network education, modern long-distance education, community colleges,

higher educational self-study examinations, and tests for record of formal schooling and diplomas all have witnessed great development. Meanwhile, Mainland China has continued to develop radio and television universities, correspondence colleges and many other kinds of diversified adult higher education delivery models. By practicing diversified forms of school administration and modes of education, Mainland China hopes to meet the continuing demands society has made on higher education.

Differences between Higher Education in Mainland China and in Taiwan

There is a big difference between students in Taiwan and in Mainland China with regard to living environments and conditions. At present, it is very difficult for Mainland China to catch up with Taiwan in social culture, internationalization, and openness. The popularization of higher education in Taiwan is already very extensive, and the competitiveness of the entrance to higher education in Taiwan is not as intense as that in Mainland China. The types of higher education in Taiwan are also very abundant; and the purpose of higher education in Taiwan is different from that in Mainland China whose purpose is mainly to cultivate those so-called academically qualified personnel. As a result, campus life in Taiwan is more lighthearted, quite different from the atmosphere of the colleges and universities in Mainland China. Moreover, generally

speaking, in the colleges and universities in Mainland China, the curricula are so rigorous that the individual student has less time at his or her own disposal (Yang, 2000).

Song (1999) showed that in Taiwan senior technical and vocational education runs parallel to general higher education, and that there are differences between them in the types of education but not in their administrative levels. The graduates of general senior high schools can go to college to study different subject majors, and then to enroll in postgraduate programs until they get doctoral degrees. So is the case with those students who graduate from technical and vocational senior high schools or training schools. They can also go to technical colleges or universities of science and technology until they get doctoral degrees. The technical and vocational education system recruits postgraduate students, who may come from those undergraduates in technical colleges, or universities of science and technology, and also may come from those undergraduates in general colleges and universities.

Mainland China has not yet established any system higher than undergraduate courses in technical and vocational education, and general colleges and universities lack necessary communication and connection with technical and vocational institutes for higher education. Besides, the instructional content of technical and vocational schools is too vocation-oriented, and the students in technical and vocational schools are short of

solid theoretical basis and stamina to further their studies. Consequently, it is very difficult for technical and vocational education to extend towards higher levels. The general educational system encompasses educational levels from general senior high school to college undergraduate course until postgraduate and doctoral education. On the other hand, the technical and vocational educational system only has the kind of education from polytechnic schools or vocational senior high schools to colleges for professional training, and after that, the students seldom have any opportunity to further their studies. This is also one important reason why the vocational senior high schools cannot recruit enough students every year (Song, 1999).

Taiwan views higher education as a business. Barring preparing the qualified talents, higher education is seen as one component of the economic activities and must be able to provide products (programs) to attract buyers (students).

In contrast, for a long time, Mainland China has seen higher education as the public career of the nation, only emphasized the political functions of higher education which just serve for cultivating talents for the needs of the regime of China Communist Party, and denied its productivity, its nature as an industry, and its economic and industrial functions. The development of higher education was entrusted completely to government investment of funds, and thus the function of higher education was limited to train

qualified personnel. This situation has witnessed great changes since the former chairman of the Chinese Communist Party Deng Xiaoping put forward the argument that “Science and technology are of vital importance to productivity” in the 1980’s. However, the traditional and obsolete concepts have not been eradicated. Instead, they are seriously hindering the colleges and universities in Mainland China from taking the initiative to meet the needs of society and move toward the competition in the market. Although higher education does possess the nature of public interest, it is more important for itself to develop industrial and investment behaviors. Only by establishing the concept of viewing higher education as an industry can we correctly understand the operating characteristics of the market of higher education, and can we efficiently operate higher education and enhance its competitiveness.

The reforms of higher education by both sides of the Taiwan Strait are carried out from different social backgrounds and within different economic development phases. As far as Taiwan is concerned, it has eliminated poverty and developed an affluent society. Higher education in Taiwan has passed the stage of “the guidance of economic development” and has been popularized. In contrast, after some 20 years of reform of its economic system and higher education system, Mainland China’s economy has just started to develop, and higher education has just started to transit from its elite phase to

popularization.

The means of the reform of higher education in Taiwan and Mainland China are also different. The educational reform in Taiwan originated from the masses, which is from bottom to top. The reform of higher education in Taiwan has been pushed by its people: “Educational reform, we push, you reform”. (Yang, 1994) If the big parade for education reform by the public on April 10, 1993 was seen as the starting point for such a reform, it has been almost 10 years. The requests proposed in this parade were inclusive of widely setting up high schools and universities, indeed practicing teaching in a class with suitable number of students, and driving the modernization of education and so on. To respond to these requests, a tentative committee of education set up in 1994 by the Taiwan government summarized five directions for education reform: to loosen education, to instruct each student well, to expand the channel of entering a higher school, to improve quality education, and to set up the opportunities of life long learning.

The Ministry of Education of Taiwan was supposed to play a role of setting into action, but it has changed five ministers in the past 10 years. Therefore, as expected, the results of education reform showed up inconsistency, mess and disorder, and inefficiency. For example, in those days, the public strongly requested to cancel the joint college examination, but a parade held on September 28, 2001 proposed a slogan of “recover the

joint college examination” (Ma, 2002).

In contrast, the reform of higher education in Mainland China is from top to bottom, and then from bottom to top. It is a massive movement involving the top and the bottom. Since the beginning of education reform in Mainland China in 1989, the central government has set up the policies for it. The local government followed those policies and guidelines to conduct the work of education reform together the stratified monitoring. The feedback from the results of implementing such policies and guidelines was used as reference for their modifications. The former minister of the Ministry of education, Chen Zhi-Li reported in 2002 that since 1989, education reform has obtained two major big achievements. One is the constant and healthy development of education, the other is the implementation of education reform (Chen, 2002).

Political, Economic, Cultural and Technological Factors in the Society and Environment of Both Sides

Educational development has always been affected by the political, economic, and technological factors in society, and the higher education system is even more affected. Higher education “not only is restricted by political, economic and cultural factors, but also influences the political, economic and cultural factors, promoting or hindering their development” (Zheng & Xue, 1988).

Social and Political Stability Is the Basic Guarantee

In Chinese history, whenever there was social turbulence or war, people became destitute and homeless, and even food and clothing became a problem. Attending schools to receive education and the development of higher educational system were naturally damaged and restricted.

In the 17 years (1949-1966) before the “Cultural Revolution”, bearing unceasing political movements and strong political impact, the development of higher education in Mainland China witnessed abrupt ups and downs in its developmental scale and speed. Political movements, especially the “Cultural Revolution” brought about the historical tragedy of an abrupt halt of education and the desolation of education, bringing disastrous consequences to her higher educational business.

In 1977, the “Cultural Revolution” was ended and the college entrance examination system was resumed. Higher education in Mainland China stepped into a new phase of development. Yang (2001) reported that in 1978 there were 598 colleges and universities in all across Mainland China, and they together recruited 401,000 students, making the total number of students on campus reach 867,000. Higher education in Mainland China underwent extremely rapid development in the 1980’s, and the average increase rate of

student recruiting of colleges and universities was 7.5% every year.

The relieving of martial law in Taiwan enabled it to enter a brand new era. The biggest change was the removal of absolute control of politics. Accordingly, Taiwan also has witnessed great enhancement in freedom of the press, opening up of media, freedom of forming associations, and freedom of speech. At the same time, the higher educational business has also developed full of vitality. The total number of institutes of higher education sharply expanded after the relieving of martial law in Taiwan, increasing from 50 in 1991 to nearly 150 at present. The total number of college and university students has also been increasing with it (Chen, 2001).

Social and Economic Prosperity Is the Basis for Higher Education

Greater investment is required in the higher education development which must fit the economic development because the two interact with each other. With the coming of the knowledge-based economy, the intimacy between higher education and the economy will be unprecedented and could be the center of the economy as well as of the whole society.

Higher education development and economic development

complement each other and condition each other. The history of higher education development on both Mainland China and Taiwan reveals that the velocity and dimension of it across the strait depends much on the economic development: higher education development will slow down if the economy lags behind, also, the former will quicken if the latter quickens.

Gong (1998) held that higher education development cannot be disengaged from the social and economic development. In Taiwan, helped by the economic development, the three transformations and development of higher vocational education in turn promoted the three transformations and reconstruction of the economy. Early in the 1950's, Taiwan opened new disciplines of vocational education, and fostered fundamentally-required teachers of it and adjusted the interaction between the education and the economy. In the 1990's, when society became more information-oriented, high-tech-oriented, internationalized and diversified with the economical development, education has to change along with the changing of the trend to provide life long learning. After the Seventh Education Conference, the Committee on the Education Reform Assessment was founded and its "strategy on adjusting the education type and function to gain more chance for people to get higher education" finally procured the establishment of higher vocational education system. It created new prospects and opportunities for the

development of vocational education, and once again proved the close relationship between higher education and the economy.

It's the same Mainland China. When the PRC was founded, because the economy lagged behind, the general scale of education especially higher education was very limited and the proportion between undergraduates, senior high school students and junior high school students in 1950 was 1:3:100. After several decades of development, especially after the reform and opening-up, because of the rapid development of Mainland China's economy, higher education has changed a lot in scale, level, type and form. In 2000, the proportion between undergraduates, senior high school students and junior high school students was 1:4:11; college students and junior college students were 77 times as many as that of 1949. Colleges and universities enlarged their enrollment in 1999, 2000 and 2001 which not only showed the changes in the national economy, but also marked that Mainland China has entered an accelerating development phase (Wang, 2002).

This economic aspect is distinctively expressed in Taiwan's vocational education whose higher vocational colleges have been thriving with the rapid development of economy, and science and technology. In the 1970's, Taiwan authorities realized that the number of junior college students and vocational school students could not meet the

needs of society. They then gradually established many vocational colleges since the 1980's (Yang, 2000).

The economic miracle in Taiwan could be attributed to the successful education planning and development which has provided society with enough useful people suitable for every phase of the economic development (Peng, 1989; Li, 1990; Fu, 1996).

To meet the needs of the economic development, Taiwan put emphasis on developing vocational education on the basis of mass education. Vocational education is divided into two types. One is to set senior vocational schools to offer technical and vocational knowledge, like the vocational senior middle school in Mainland China. The other is to establish junior college of technical and vocational education whose school years are 2, 3 and 5 years. The great efforts on vocational education changed the secondary education structure a lot. In the old days, the secondary education aimed to enable students to enter colleges and universities. Now, it cultivates mid-level technical students. Students who do not want to go to colleges but want to learn technology in order to find a job can go to senior vocational schools. There are technical colleges, and universities of science and technology, which enroll graduates from senior vocational schools and junior colleges of two, three, and five school years. After two to four years of study there, students are granted a bachelor's degree. This kind of college offers

knowledge of applied disciplines and technology to cultivate senior technical-mastered people. Because there is no fierce competition as in the university entrance examination, many students go to such technical colleges, and universities of science and technology. Taiwan puts great efforts in spreading vocational and technical education whose effects could not be underestimated in enhancing the quality of working people and quickening the economic development (Hua , 1999).

Liu (2001) said when the PRC was founded, to ensure the successful fulfillment of the strategy to develop heavy industry first, heavy industry sections were ensured the necessary employment of human resources. To meet this kind of the economic need, higher education adjusted the colleges and universities as seen in Table 4.6. After the adjustment, from the number of both colleges and universities, the proportion of students studying science was greatly raised which greatly promoted the economic development at that time.

Mainland China has constantly adjusted higher education on the basis of the economic development. After the reform and opening-up, college and university administration system has been gradually separated from the old system in which the government had the monopoly on school-administration and formed the new system of school administration by various forms. The old system that only relied on government's

financial allocations has been changed into the new system that features the dependence mainly on government's financial allocations and on other forms of financial investment as well. The form of administrative system has made great progress in five aspects: establishment and management together, cooperation in college and university administration, incorporation of colleges and universities, management by both the central and local government and transferring the management power to the local government. The reform of the system and the reconstruction are linked closely together with the structure of different levels and disciplines becoming more reasonable. The numbers of undergraduate majors were reduced from 813 to 504 in 1993, and again to 249 in 1998. The reform of teaching is proceeding in all respects and, more profoundly, making great efforts to enhance the quality of undergraduates and cultivate excellent undergraduates in basic walks for the new century (Liu, 2001).

Taiwan has much experience in education development. One of the most successful efforts has been to make education serve the economy all along, and to develop education according to the economic development. That is, the economic development has been taken as the only guide line for education development and reform (Wang, 2002). As Li (1996) said, the reason why Taiwan has created the world-famous economic miracle, despite its small area and limited resources, is that the education there is

increasingly and widely spreading. Promotion of graduates' quality of higher education is the prime mover for the economical development.

Table 4.6

The Number of Colleges and Universities of Mainland China in 1949, 1953, and 1958

	Year		
	1949	1953	1958
University	49	14	27
Technical college	28	38	51
Arts & Science college	11	8	5
Financial college	11	6	12
Law school	7	4	5

Note. All these were public institutes of higher education, not including military ones. From “ Operating mechanism of China general higher education: Competition from planning economy to market economy,” by Q. Liu, 2001. Retrieved May 5, 2002, from http://www.guanzhong.gd.cn/subwebsite/yw_web/shouwang/yuedu/jiaoshicankao/sixianqianyan/sixiangdejingjie/sixiangdejingjie/000901/jiaoyu.htm

Wei (2001) held that this is also true with Mainland China, stating that “Colleges and universities play a crucially important role in promoting enterprises to develop their technology and solve important scientific and technological problems concerning the economic and social development, and they are also the might base in which industries and enterprises are produced.”

Science and Technology

Marked by the technology of multimedia computer and the Internet, modern information technology has greatly revolutionized people’s ways of transmitting information. From the perspective of transmitting science, education is a kind of transmitting activity to achieve a certain purpose by certain transmitting means. While educational transmitting means is the media for educational transmission, without the transmitting means teaching activities could not be implemented. Teaching methods always changes with the changes of educational transmitting means (Yang & Yang, 2001; Nichols, 2002).

Modern information technology has been rapidly changing people’s way of studying and way of being educated. Distance education in a changing era will ignite a world-wide education revolution. Zhang (2001) thought that the so-called Internet distance education

could be defined as a modern distance education which provides learners with timely training and information services through multimedia with the help of computers, Internet resources and other multimedia resources synchronously or asynchronously.

Desmond Keegan, a world famous scholar in distance education, summarized the basic definition of distance education in 1983. Distance education is a field which education tries to set foot in. In the field, there is a quasi-permanent separation of teacher, learner and learning group throughout the length of the learning process. Use of technical media carries the content in place of interpersonal communication based on conventional practice, orally teaching and collectively studying. It equals an industrialized teaching process (Liu & Yang, 1999).

Distance education in Taiwan could be dated early back to the Air College, founded in 1986. At that time, cable TV channels functioned mainly as teaching tools which were implemented with correspondence courses. When the National Information Infrastructure was founded in August 1994, distance teaching became the main driving power. In recent years, the booming growth of Internet technology popularizes the World Wide Web (Zeng & Chen, 2001).

Distance education in Mainland China began in the middle of the 1990's. At the end of 1994, administered by the National Education Committee, the demonstration project

of “China Education Research Net, CERNET” began to be constructed, and it offered internet-based resources for distance education. Tsinghua University introduced the idea of developing distance education in 1996; Hunan University established the first online college in 1997; Tsinghua University began to provide online advanced study courses for postgraduates in 1998. In September 1998, Tsinghua University, Beijing University of Posts and Telecommunications, Zhejiang University and Hunan University were ratified publicly by the Ministry of Education as the first test universities to offer distance education.

Mainland China set down *Proposals on the Development of China’s Distance Education* in 1999. *Temporary Regulations Concerning the Management of Educational Website and Web School* was published in July 2000, in which rules and regulations on enterprises’ investment on distance education were clearly put down. In the same year, *Several Suggestions on Supporting Some Universities to Establish Online Educational Colleges to Offer Distance Education as a Test* was published, which provided 31 colleges and universities with the power to offer degrees admitted by the country. It could be seen as the government’s acquiescence on enterprises’ entering into the distance education. This fundamentally promoted the development of distance education in colleges and universities.

Up to April 2002, there were 47 colleges and universities which have been ratified by the Ministry of Education to offer distance education with degrees, and students enrolling such distance education reached 240,000. At the autumn of that year, students increased to more than 400,000, and 51 specialties were offered for study. Online education has spread to 31 provinces, municipalities and self-governed city under the central government. (Internet Laboratory, 2002).

Modern distance teaching breaks away from the traditional method of teaching by correspondence and adopts the computer networks, which gives higher education some new characteristics: globalization, overwhelmingly large amounts of information, easy to operate, personalized and low cost. These new characteristics will bring some revolutionary changes to the pedagogical concept, organization forms, teaching modes, teaching-learning relationship and pedagogical administration of higher education. The coming of the network era and the development of the network technology set a new, larger stage for distance educational business.

Li (2001) held that the direct influence that distance teaching exerts on higher education of the two sides of the Taiwan Strait is: to enlarge the scope and range of higher education unlimitedly and with very low cost, and therefore to satisfy the needs of higher education of the society to the maximum. Distance education also brings more

teaching resources to colleges and universities, which is beneficial to largely improve the teaching quality of the universities and to cultivate talents suitable for the knowledge economic era of the future.

Distance education will overcome the barrier between geographic terrain and countries, making teaching a shared resource by the mankind and promoting communication and cooperation between colleges and universities globally. Although this kind of needs of the development of educational modernization will pose some new problems for present educational administration, such as ways of entrance, administration of credit scores, cognizance of regular homework and academic achievements, methods of graduate examination, access and recognition of academic degrees, etc. But distance education is bound to largely promote the development of higher education across the Taiwan Strait (Li, 2001).

As far as Taiwan is concerned, it has accumulated many years of rich experiences of distance education, and with the vigorous support of related units and years of full cooperation of colleges and universities, it has managed to make the network learning environment within the island a part of the school teaching, and at the same time the quality of teaching and learning as a whole has reached a certain standard. During these years of development phase, “the Ministry of Education” of Taiwan fully provide the

outlay, and encourages colleges and universities to write their own teaching materials suitable to their distance teaching environment and network. Synchronous distance teaching, as part of this effort, which is mainly based on ISDN network structure, can carry out course selection across schools, and has become the first step of inter-school integration of Taiwan. Colleges and universities themselves also develop their own teaching system, establish the mechanism of asynchronous learning system, and at the same time self-design the content structure of the teaching materials. The most important requirement of the data circulating on the network of distance teaching is to be easily accessed by users, but mere easy access is not enough. Therefore the present network learning of Taiwan is developing to enhance the study efficiency, and to let every learner learn everywhere and learn anytime (The Ministry of Education of Taiwan, 2001).

As to Mainland China, network distance education brings more educational opportunities to the people, and eases the conflict of unbalanced distribution of educational resources. According to the Ministry of Education of Mainland China, among people of 18 to 22 years old, those who can receive traditional higher education, only occupy 11.5 % of the people who should go to college at a suitable age, while the network distance teaching, almost unlimited by time and space, and educational resources, can make excellent educational resources shared by people, and give people

equal chance of being educated, and therefore can efficiently integrate the educational resources of the whole society, and relieve the unbalanced distribution of educational resources in Mainland China. Network distance education is also an important means to realize popularization of higher education and life-long study aims. The strategic aim of higher education of Mainland China is, to the year of 2010, the higher education enrollment rate of people of the suitable age should be raised from 11.5% in 2000 to about 15%. It is impossible to achieve this aim merely by relying on present traditional methods and institutes of higher education, while network distance teaching is an effective way to achieve this aim (Zhang, 2001).

Sun (2000) also held that network distance education represents the trend of development of future education, and is a global market that harbors great potential value. Studies of the World Organization of Economic Cooperation showed that, from 1995 to 2004, the global market of network distance education will increase by 45% per year. Due to the development of the technology, network education will play a more important role in higher education on both sides of the Taiwan Strait, especially in Mainland China.

Chinese Cultural Traditions Are the Inner Force

Culture in a broad sense means the combination of material civilization and spiritual

civilization. In a narrow sense, it can be interpreted as “the cumulative spiritual deposit of the spiritual state, psychological state, thinking modes and ideas of values, which represents certain national characteristics and reflects its level of theoretical thinking” (Li, 1988).

Education is a cultural product, as well as being the movement motivation of culture. In a general sense, higher education is a component of the national culture, and its development and change is bound to be restrained and influenced by national culture (Liu, 2001). Therefore, Wang (2001) stated that education and culture are the drives of each other and they co-develop in interaction.

Culture is the foundation of a nation, and is needed for it to survive. Every nation has its unique culture, and the cultural uniqueness forms the uniqueness of the nation (Wang, 2002). No matter if it is in Taiwan or in Mainland China, higher education has its roots in the long-standing national culture and educational tradition, and forms its own school-administration characteristics. Among a number of universities, Tsinghua University, Beijing University, Transportation University and Taiwan University are the best examples, not only to cultivate a lot of excellent talents and make an enormous contribution to the social development of the both sides of the Taiwan Strait, but also to have a teaching faculty of very high levels, cumulate a large number of scientific

products, set up good conditions for teaching and research, form the outstanding tradition of teaching supervision, and enjoy relatively broad international communication.

Song (2000) showed that higher education of the Chinese nation now faces the challenge of two cultural conflicts. One is the conflict between eastern and western cultures, and the other is the conflict between national traditional culture and modern culture. Yu (2001) held that higher education is not only the base of the social and economic development, but also the successor and protector of national culture. The development science and technology and education must be based on traditional culture, spurning the negative and outdated elements of the traditional culture and inheriting its soul and excellent essence.

As far as the Chinese nation is concerned, technology and the art of science, together with modern education which adapts to them, did not come into being within the nation itself, but developed under the influence of the foreign cultures. Therefore, Xu (2001) reported that institutes of higher education of the both sides of the Taiwan Strait, when improving their level of research, teaching and administration, renewing their pedagogical concept, exerting more efforts in cultivating students' creativity, should put emphasis on nurturing a human cultural atmosphere, and make institutes of higher education the bases of cultivating and spreading Chinese national culture. The talent

cultivated by institutes of higher education should not only master the most advanced knowledge and competence of science and technology, but also be edified by Chinese culture and have the spiritual inside information which is consistent with the traditional morality and value of the Chinese nation.

Zhou (2002) held that higher education have three basic functions, that is, cultivating advanced professionals, developing science & technology and culture, and promoting the social development. Liu (2001) also stated that economic globalization does not mean the cultural differences will diminish or the coming into being of a new culture that is globally uniform, and on the contrary, cultural diversification will long survive and be encouraged, and higher education will play an important role in inheriting, developing and renewing the culture.

The human society, impelled by scientific breaks-through and technological innovation, is entering the era of knowledge economy. In the 21st century, higher education, as the disseminator of cultures and knowledge, the cultivator of healthy talent, the cradle of new knowledge and the growing point of high technology, will be pushed to the center of the historical stage. China has a long-standing and excellent cultural tradition. But tradition is, after all, the product of the old era. Spurning the negative and outdated elements of the traditional culture, inheriting its soul and excellent essence, and

giving it a new connotation of the era, is to create new culture on the basis of the traditional one, and this is the holy responsibility of higher education of the both sides of the Taiwan Strait (Song, 2000).

Explanation and Discussion of Results

This study dealt with the differences and similarities between the higher educational systems of Mainland China and Taiwan. Both sides share the same cultural heritage. Basically, there are not many major differences. The differences are primarily governmental.

Taiwan has become more westernized and therefore more developed in many ways. For instance, generally speaking Taiwan is more affluent and has been more open to western influences. The economic miracle and preponderance of high-quality educational material has greatly transformed Taiwan. Government control of education has changed from controlling to monitoring.

Taiwan has been alienated from Mainland China for so long that discrepancies exist in many areas. Two major differences are economic and mindset. A serious problem has been Mainland China's various policy.

Both sides of the Strait value education highly, probably more than any other

country. Taiwan people are encouraged to be open-minded, whereas it is a different story in Mainland China. Taiwan students are gravitating towards Mainland China's education because the former antagonistic situation has changed and therefore many people are changing their view points.

Presently the economic situation between the two places has been reversed. It is still a headache and very problematic for the educational quality to advance rapidly, due to inequality, distribution or allocation of funds. At present, Mainland China faces a high unemployment rate. Higher education is sometimes one of solutions to this unfortunate circumstance. Taiwan has been wary of degrees obtained from Mainland China.

Cross-straits educators are attempting to solve the many difficulties that they are encountering regarding cooperation and reconciliation. Mainland China has benefited greatly by being accepted by the WTO. Many employment opportunities await Taiwan graduates in Mainland China.

Textbook development is presently a problem for Mainland China but not for Taiwan. Taiwan and Mainland China are major trading partners and continued educational enlightenment hopefully will change the situation, and both sides will benefit and establish mutual understanding and cooperation. Mutual acceptance is the main goal. Taiwan is well-developed regarding high-technology and other scientific advances. Even

though the GNP growth in Mainland China is high, it is going to take a long time to become as advanced as Taiwan. Population differences, availability of funds, mentality and policies are the major factors adversely affecting educational advancement and implementation in Mainland China. Mainland China has so many things to do besides upgrade its higher educational system. This is the crux of the problem.

Chapter V

Findings and Conclusions

Both Mainland China and Taiwan attach much importance to higher education. The two sides always try hard to develop higher education. This is one of China's deep-rooted traditional ideas and concepts.

Folk sayings, which are widely-spread among the folks, such as “nothing is noble except reading”; “learn and learn it well and then enter the political circle”; “there lies a fairy beauty Yan Ruyun and golden house in the books”; are true reflections of how the common folks regard to education. Taiwan has been separated from Mainland China since 1949. The two sides have been politically opposite, and economically sealed from each other. The contact between the people in Taiwan and Mainland China has been minimized. With this background, the two sides developed their own higher educational systems, according to the specific conditions and needs of the two varied societies

Mainland China and Taiwan share the same ancestry and the same cultural background, and their higher educational systems are, in many aspects, similar. After the founding of the People's Republic of China in 1949, the educational systems in Mainland China and Taiwan grew in different social conditions and developed distinctness from each other naturally. The purpose of this study was to compare the higher educational

systems in Mainland China and Taiwan, focusing on the similarities and differences between the two sides. Such similarities and differences mirrored the indivisibility in history and reality of the two sides of the Taiwan Strait. Therefore, this study analyzed both virtues and flaws on the two systems through a review of the history of the development of higher education of the Chinese people and the status quo of the two systems. It further expounded on the political, economic, technological and social impacts on the higher educational systems of Mainland China and Taiwan and provided research results of great value to the future development of the higher educational systems on both sides of the Strait.

This study carried out the following four research questions in order:

1. Describe both the higher educational systems and conduct a brief historical analysis of how they developed.
2. Fully describe the higher educational systems as they exist today.
3. Show the strengths and weaknesses, similarities and differences of each system.
4. Show how the political, economic, cultural and technological factors in the society and environment of both sides have affected the higher educational systems and made them what they are today.

The similarities and differences between higher education in Taiwan and Mainland China and its future development have been analyzed. It is hoped this study will enable scholars to draw a clear picture on the cooperation of higher education between the international community and the two sides. It also gives the international community a better understanding of higher education in some Asian countries or regions which have the oriental cultural tradition. This study promoted awareness of the international community, Mainland China and Taiwan and the need for higher educational development on each side of the Strait. There exists great potential in this era of constructional reform and in the existing social condition, for the knowledge and information based industry to replace manufacturing as the center of economic growth. Investment in vocational education in Taiwan and Mainland China will pay great dividends in return.

Research in this study was both historical and practical in terms of content. In terms of chronological time, it included modern practice as well as ancient history. Yet the comparison between Mainland China and Taiwan began only after 1949, for the two sides were separated in the year 1949. After that, the two sides started to develop higher educational systems separately.

This study on the higher educational systems in Mainland China and in Taiwan

involved a broad scale of materials and fields. It was a process of collecting materials in a broader scope and conducting exploration in depth. The topic of this study needed as much material as possible, with quality as high as possible and reliability. For achieving this purpose, the key point was to collect a variety of data and information which was valuable and explanatory.

Through preparation, this study seriously carried out an investigation on the educational systems of Mainland China and Taiwan. It is hoped that this research was constructive for studies in the higher education systems of the two sides of the Taiwan Strait.

Conclusions

Through the investigation, this study found:

1. Common features of higher educational systems on both sides of the Taiwan Strait exceed differences.

In spite of that fact, the two sides develop higher education in different social background and economic environments, and the educational systems of the two sides have respective characteristics and differences, on the whole. The common features of higher educational systems on both sides still exceed differences.

2. Attaching importance to and developing higher education are long time policies that two sides adhere to.

Although the process of the development of higher education of the two sides is very different, the two sides unanimously stress the significance of higher education. The long time guidelines of attaching importance to, and developing higher education for the two sides to adhere to will not change in the future.

3. The political factors still have an impact on the exchanges and cooperation in the educational fields between the two sides.

Although many Taiwanese private enterprises have invested increasingly in Mainland China, at present the authorities of the two sides still argue with each other upon different political positions, and the exchanges and cooperation of the two sides are restricted to some extent. For instance, at present Taiwan government has not yet recognized the diplomas and degrees granted by Mainland China.

4. The reform of higher educational systems of the two sides brings about more opportunities for countries with more developed higher education to participate and invest in both sides.

The reform of higher educational systems in Taiwan and in Mainland China has undertaken diversified schooling, especially in combination with foreign educational

sources, i.e., it brings about more opportunities for countries with more developed higher education to participate and invest in both sides.

5. The situation of the higher educational reform of both sides is different.

Taiwan and the Mainland both conduct reform in higher education. The reform in Taiwan began earlier. However, because of the factors as in the social, political and geographical aspects, the need for the development of higher education in Taiwan is far smaller than that in Mainland China; and, the prospects dimmer than Mainland China, and let alone the potential for the development.

6. Increasing exchanges and improving cooperation are indispensable for the future better development of higher education between the two sides.

Taiwan and Mainland China must increase exchanges, improve cooperation and thus learn from the other's strong points to offset its own weakness. This will be conducive to the development of higher education between the two sides, and to the exchanges and cooperation with the international higher education field.

Recommendations for Further Research

It is a big topic to talk about the higher educational system in Mainland China and Taiwan, for it involves aspects of higher education of the both sides, and it is not easy to

cover it in details in one article. Restricted by the coverage of an article, this study left far from complete the history of higher education previous to the year of 1949 in China. At the same time, due to the restrictions of conditions, the illustration of higher education of Mainland China in the Cultural Revolution is far from complete, as is the research on how higher education of the both sides develops under edification of the long-standing culture of the Chinese nation.

Implications

The four research questions in this study covered some important issues in the development of higher education in Mainland China and Taiwan and should be further investigated. But the following should be paid attention to in further research studies:

1. The research topic should be correct. Those aspects that higher education in Mainland China and Taiwan has in common should be preferred to those differences between these two.
2. The topic for research should be appropriate, and the topic's being too big or too small will hinder research of this kind.
3. Data collection should be comprehensive. Data, no matter positive or negative, authoritative or not, should be collected. The more data we collect, the better the

research is.

4. Reading the documents through is very important in studies on higher education of Mainland China and Taiwan.

Future Research

John K. Fairband, a former professor of Harvard University, once said in his book, *China: A New History* that due to the great disparity between Mainland China and Taiwan, a comparison between these two are not persuasive. Besides, John N. Hawkins, the Center of International communication and research of UCLA, also mentioned that these two societies are not comparable societies, and as far as urbanization is concerned, 80% of the people in Mainland China live in villages while over 50% of the population in Taiwan lives in cities. As a result, the comparison between the two sides will be of limited significance (Zhou, 1998).

This study held that Mainland China and Taiwan share the same history, culture, language, character and tradition, but with different social development, and that the comparative study between the two sides still means a lot and what is crucial is to choose the right comparative objects and research directions.

It is with this consideration that this study chose higher education as the object of

comparison and carried out a comparative study of the higher educational systems of Mainland China and Taiwan. Different from other similar studies, this study conducted a comprehensive survey from a macroscopic perspective, instead of only involving some partial aspects of the issue. It was not confined to a certain historical or realistic aspect, but combined history and reality to carry out this study. Therefore, the results of this study provide a new avenue of thought for studies of this kind; it has significant reference value.

It can be seen from the research process that the comparison between the higher educational systems in Mainland China and Taiwan enjoys not only a great value for research, but also a great significance for practice.

Summary

This study held that Mainland China and Taiwan share the same history, culture, language, character and tradition, but with different social development, and that the comparative study between the two sides still means a lot, but what is crucial is the choosing of the right comparative objects and research directions.

It is with this consideration in mind that this study chose higher education as the object of comparison, and carried out a comparative study of the higher educational

systems of Mainland China and Taiwan. Different from other similar studies, this study conducted a comprehensive survey from a macroscopic perspective, instead of involving some partial aspects of the issue. It was not confined to a certain historical or realistic aspect, but combined history and reality to carry out this study. Therefore, the results of this study provide a new research angle for studies of this kind.

Since Taiwan was separated from Mainland China since 1949, the two sides have been politically opposite. The two sides developed their own higher educational systems, respectively, according to the specific conditions and needs of the two varied societies

The purpose of this study was to compare the higher educational systems in Mainland China and Taiwan, focusing on the similarities and differences, and to provide research results of great value to the future development of the higher educational systems on both sides of the Strait. It is hoped that this study will enable scholars to draw a clearer picture on the cooperation of higher education between the international community and the two sides. This study was done to promote the awareness of the international community that Mainland China and Taiwan have need for higher education development, which would result in massive returns on investments. There exists great potential in this era of constructional reform and in the existing social condition, for the knowledge and information based industry replaces manufacture as the center of the

economic growth.

This study found (a) Common features of higher educational systems on both sides of the Taiwan Strait exceed differences; (b) Attaching importance to and developing higher education are long time guidelines that the two sides adhere to; (c) The political factors still have great impact on the exchanges and cooperation in the educational fields between the two sides; (d) The reforms of the higher educational systems of the two sides have brought about more opportunities for both countries (e) The situation of the higher educational reform of both sides is different; and (f) Increasing exchanges and improving cooperation are indispensable for the future development of higher education between the two sides.

This study shows more research is needed about (a) the history of higher education prior to 1949 in China; (b) higher education of Mainland China in the Cultural Revolution; (c) how higher education on both sides can be developed under the edification of the long-standing culture of the Chinese nation.

This study showed that the comparison between the higher educational systems in Mainland China and Taiwan enjoys not only a great value for research, but also a great significance.

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