國立臺灣大學企業管理碩士專班

碩士論文

Global MBA

College of Management

National Taiwan University

Master Thesis

教育服務創新–從服務管理的角度探討高等教育的演化以及未來在大中華地區發展之道

Educational Service Innovation - From the Service Management Perspective to Discuss the Evolution and Future Development of Higher Education Market in Greater China

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中華民國 99 年 1 月

January 2010

國立臺灣大學碩士學位論文

口試委員會審定書

Master Thesis Certification by Oral Defense Committee
National Taiwan University

教育服務創新 - 從服務業管理來探討高等教育的演化以及在大中華地區的發展之道

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本論文係劉世群君（R95749005）在國立臺灣大學企業管理碩士專班、所完成之碩士學位論文，於民國 99 年 01 月 27 日承下列考試委員審查通過及口試及格，特此證明

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Acknowledgements

Professor Huang is not only the advisor of my thesis but also the mentor in my life. From the day he stepped into my statistics classroom till now, I've learned much from him. In addition to knowledge, his way of thinking, his values and even some habits have deeply affected my life. I can't be more grateful for having him cultivate and enlighten me.

I also owe a lot to my family, my friends and all those who love me. I've been too greedy and too busy to pay enough attention to their life. I feel very sorry and also very grateful.

Last, but not the least, I'd like to express my gratitude to National Taiwan University. I've been a student of National Taiwan University for 15 years. I've stayed here so long that people can even smell the school when they talk to me. I'm very proud to be a NTU graduate.

中文摘要

高等教育的財政危機由來已久。雖然學者對於大學的價值仍有爭議，學校雖早已擁抱了市場的機制。爲了解決尋找新財源的問題，本研究引用近來蓬勃的服務業管理相關理論至高等教育市場上，希望藉由這些新的思想來解決高等教育的困境。

在本研究中，我們探討高等教育危機的成因，分析是否教育算是一種服務，整理教育服務的特徵，提出一個完整的服務創新架構以分析教育創新，對於高等教育拓展財源的方式進行完整而詳盡的研究，並針對大中華區的學校提出建議。

關鍵字：高等教育、高等教育市場化、教育服務、教育服務創新、大學再造、大學法人化、學術資本主義、技術移轉、e-learning、EMBA、全球化、產學合作、營利高等教育、企業型大學、技職教育、終生學習、推廣教育、成人教育、組織創新、服務創新、服務採納及擴散、新服務發展、服務行銷、服務業管理。

Abstract

Higher education institutes around the world are facing funding problems for decades. Although scholars are still disputing the value of university, schools are becoming more commercialized. In order to resolve the difficulty of finding new source of funding, we applied the recent academic development of service management to the higher education market to provide new direction for higher educational institutes.

In this study, we discussed the cause of the higher education crisis, analyzed whether education is service, summarized the characteristics of education as a service, proposed a comprehensive service innovation framework to analyze the educational service innovation and provide a detailed study of how schools can find new source of funding especially for schools in the greater China area.

Keywords: Higher Education, Marketization of Higher Education, Educational Service, Educational Service Innovation, University Reform, Academic Capitalism, Knowledge Transformation, E-Learning, EMBA, Globalization, University-Industry Relations, For-profit Higher Education, Entrepreneurial University, Vocational Education, Continuing Education, Adult Education, Organizational Innovation, Service Innovation, Service Adoption and Diffusion, New Service Development, Service Marketing, Service Management

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Higher Education in Crisis[1] - The Change of The Value of University

This is a tolerably general agreement about what an university is not. It is not a place of professional education. Universities are not intended to teach the knowledge required to fit men for some special mode of gaining their livelihood. Their objective is not to make skilful lawyers, or physicians, or engineers, but capable and cultivated human beings. – John Stuart Mill, in his inaugural address at St. Andrew's University in 1866[2].

I. The Change of The Value of University

1. The Traditional Core Value is in Crisis

The traditional core value of university is challenged by the modern demands from the environment. The relationship between higher education institutions and their environment also changed fundamentally (Tynjälä, välimma and Sarija 2003). From the historic perspective, universities have long been seen as a place where knowledge is born, society is cultivated and values are preserved. Higher education was only for the elite - the most intelligent or privileged 10-15% of the

[1] Named after the book by (Natale, Libertella and Hayward 2001)

[2] Cited from (Natale, Libertella and Hayward 2001)

population, who learn largely on their own (Phillips 2005).

The movement of educational marketization began in 1950s with the hope to resolve some existing problem of education system. Two of the early proponents are Nobel Prize laureates Friedrich Hayek and Milton Friedman. As Hayek argued in his book 'The Road to Serfdom', the free markets, rather than government control and bureaucracy, were the best means of determining quantity of production and the pricing of goods. Ideally, traditional government services, such as schooling, should be privatized and control turned over to the forces of the marketplace (Spring 2008). As (Gai 2004) stated the reasons why we should marketize higher education can be summarized as (1) private sector can provide better efficiency (2) lower government financial burden (3) Higher attention on customer need.

In the past, it was generally believed that the public interest and public entities must be kept separated from the private domain. The public interest can be best served by preventing conflict of interest. Nowadays, the public interest is said to be served better by directly involving public entities in the private sector and by fostering the pursuit of private profit clients (Rhoades and Slaughter 1997, 14). The academics have become increasingly affected by the profit motive and market-like behavior in order to increase external grants in response to the declining university budgets (Tuunainen and Knuuttila 2009). The state's interest in the university is now considerably more intrusive and less benign (Natale,

Libertella and Hayward 2001, 8)

Although, Higher Education has been changing evolutionally with the change of the environment (Natale, Libertella and Hayward 2001). The value of higher education is under fiercely debate.

2. Neo- Liberalism, neo-conservatism, Marketization and Corporatization

The neo-liberalist culture in the last decades is the environmental force that is pushing faculty members to turn to academic capitalism in order to maintain research resources and maximize prestige (Mendoza and Berger, Academic Capitalism and Academic Culture: A Case Study 2008). Many studies have suggested that the neo-liberalism is very influential to the current Marketization of higher education (戴曉霞 2004). We have seen the ascendance of neo-liberal and neo-conservative politics and policies that shift government investment in higher education to emphasize education's economic role and cost efficiency. This shift has led governments to cut funding for public higher education (Rhoades and Slaughter 2004).

Universities have become corporatized and marketized as the concept of neo-liberalism prevail and state-guaranteed rights in education basically no longer exists (Lynch 2006, 3) (陳維昭 2001). Over the last decade, universities have been transformed increasingly into powerful consumer-oriented corporate networks, whose public interest values have been seriously challenged (Lynch 2006).

3. Accountability

Does the academy provide good value for money? Is money being spent wisely and well? Is there an appropriate social return on the billions of dollars that are invested? These are questions asked by the government and other donators today (Natale, Libertella and Hayward 2001, 8) Government officials and the general public have become more concerned about getting something in return for all that money (B. Clark 2001). University, as being least partly supported by taxpayers, especially public university, are expected to contribute to the welfare of the society (莊英慎 and 林水順 2003). Therefore, the value of university is redefined by an increasing concern with the economic and vocational relevance of what is taught rather than an older set of more "liberal" concern (Natale, Libertella and Hayward 2001, 8). Higher education is the pursuit of the "practical" rather than the pursuit of the "true" or the "good" (Natale, Libertella and Hayward 2001, 8).

4. Deregulation, Decentralization and Privatization

Deregulation is to reduce the control power of government and let universities to determine pricing, curriculum, policies and so on. There is a movement by countries to de-regulate higher education and free up organizations and individuals to more easily engage in entrepreneurial activity (Rhoads 2006). For example, in Japan, the University Deregulation Law was passed in 1991 to promote the idea of market logic instead of government control (戴曉霞 2004).

The privatization movement is closely packaged with deregulation and declining state support. As (Rhoads 2006) argued:

> *In some sense, deregulation and a reduction in support are the means for achieving a specific end, which is privatization. In a broader sense, this trend represents private interests assuming priority over the broader social good—essentially speaking, capitalism wins out over socialism.*

Between 1997 to 1998, Japanese government start to re-define higher education institutes as 'independent administrative agency' which is not included in the government budget (戴曉霞 2004, 26). Privatization is not only popular in developed countries, it also find lots of supporters in developing countries (Gai 2004) It was highly supported by UNESCO and World Bank (戴曉霞 2004, 24).

5. Pragmatically and Occupational Education

Apart from their traditional missions, academic research and higher education institutes have assumed a number of new societal service functions (Tuunainen and Knuuttila 2009). From economists' human capital theory's point of view, education is important because it allows workers to be more productive (Robeyns 2006). Education can create skills and help students to acquire knowledge that serves as an investment in the productivity of the human being. The higher education institutions are expected to develop vocational know-how and competitiveness by combining the needs of working life, vocational training, and theoretical and practical knowledge. (Tynjälä, välimma and Sarija 2003)

The trend of practical education can also be seen from the departments from which student graduated. In US, more than 58 percent of bachelors' degrees were awarded in occupational fields and the number is about 80 percent for post baccalaureate level (Brint 2002).

Another practical role of education is to serve as a signal. In 1973, Spence published an often-cited paper, *Job Market Signaling*, on The Quarterly Journal of Economics, and argued that the higher education and the degree, for the information economics' point of view, serves as a signal to help employees to prove they are suitable for the job market and to help employer to choose who they want (Spence 1973).

As some scholars augured, in a university existing in a social context of application, it is relevant to ask not only whether research accumulates disciplinary-based knowledge, but also whether it is useful for society (Tynjälä, välimma and Sarija 2003).

6. The Commoditization and Industrialization of Education

According to (White 2007), commoditization refers to the process of valuing activities and their outcomes primarily with reference to their economic benefits. One of the emerging culture of the university is to treat education as commodity (White 2007). (蘇進棻 2007).

The pressure to move education from a public service to a tradable service is very

much part of the ideology of the World Trade Organization (WTO) General Agreement on Trade and Services (GATS), the purpose of which is to liberalize all service in all sectors of the economy globally (Lynch 2006). The reasons to make education a tradable service are quite simple. In year 2000 UNESCO estimated that education was a $2 trillion global 'industry' (Lynch 2006).

The dominant idea of public higher education has been moving away from the idea of higher education as a social institution toward the idea of higher education as an industry (Gumport 2000). And from the perspective of higher education as an industry, public colleges and universities are seen increasingly as a sector of the economy. Universities now are like firms or businesses to produce and sell goods and services. They train some of the workforce, advance economic development, and perform research (Gumport 2000). Higher educational institutions are sites for the transmission or sale of cultural capital (Slaughter and Leslie 1997). They are becoming businesses selling university places both overseas and at home, cooperating with industries and selling research products and professional services (White 2007). For example, "the University of Michigan, Inc.," is an annual budget of over $2.5 billion would rank roughly 200th on the list of Fortune 500 companies (Gumport 2000).

II. The Argument of Marketization

Scholars and practitioners in higher education have been debating in what degree

universities should become in taking the market-like behaviors (Rhoades and Slaughter 2004). The mainstream of the literature agrees that a certain level of commercialization is necessary to ensure adequate responses to decreased public funding and new demands. However, there are still a lot of debates between scholars who support or disagree with the concept.

1. The Problem of Marketization

Although it has occurred, not everyone agree with the change of the paradigm, especially from scholars in education fields (Gai 2004, 45). Some of them think education is not a marketable product. The value of education is more subtle but profound to the society(Gai 2004). In his book, "Creating the New American College," Ernest Boyer challenges higher education to reconsider its mission to be that of educating students for a life as responsible citizens, rather than educating students solely for a career (Bringle and Hatcher 1996). The new revenue-generating activities, of course, may threaten core, cherished academic values (Hearn 2006, 28).

(1). The Conflict of Goal

As (陳維昭 2001) argued, although universities can perform the functions that required by the economic or political forces, the most important mission of universities is still pursue for truth and justice. Education provides a broad intellectual formation and requires no justification beyond a recognition of their own intrinsic value. Therefore, with regard to education, people are valued in so

far as the have minds to be developed and personalities to be formed (Natale, Libertella and Hayward 2001, 11). This entrepreneurial activity creates a dilemma for all nonprofit organizations. As (Eckel 2003) argued "how to balance pursuit of their social missions with financial constraints when additional resources might be available from sources that might distort mission."

Collaboration of business and universities may mean loss of university control over the direction and quality of research because of different values by academia and industry sponsors (Mendoza and Berger, Academic Capitalism and Academic Culture: A Case Study 2008). As (Weisbrod, Ballou and Asch 2008) argued, the school now can be seen as a firm that provide two kinds of goods – the mission good that is the core value of the university as required by the public and government; the revenue good that is how universities can survive.

(2). Lost of Intellectual Integrity

The possible negative aspects of this situation are troubling. Universities may lose their intellectual integrity and higher education may become an extension of the business word. The university-industry link will make university lose its independence, make the role of faculty blurred and fight for the intellectual property (Gai 2004, 45). As an study discussed in (Gilde 2007), one third of the 920 medical-related scientist who received gifts from medical and drug companies said their corporate benefactors expected to review their academic papers before publication and 19% wanted the patent rights to commercial discoveries stemming

from use of the gift.

There are many example can show us the danger of the damage. Some professors sponsored by corporate allow the sponsors to suppress negative data in the interest of profit (Gilde 2007). This confirmed that much of what is written in American medical journals can't be trusted (Gilde 2007). And as an example discussed in (Soley 2000), the University of Minnesota houses the China Times Center for Media and Social Studies, which seeks "humbly to promote China's democracy. The center's funding comes from Taiwan and is named for Taiwan's largest circulation newspaper, owned by a member of the ruling party, KMT. To help Taiwan achieve its objectives of embarrassing and isolating its 'enemy', the center sponsors conferences and research critical of China and its associates publish articles condemning China's policies (Soley 2000).

(3). Become Practical Only

Academics are expected to foster and disseminate basic knowledge as part of their social mission (Mendoza and Berger, Academic Capitalism and Academic Culture: A Case Study 2008). The academic profession was expected to be driven by intrinsic motivation and rewards that is based on the fascination with research, the enchantments of teaching, and discipline-oriented prestige rather than on material or monetary incentives (Mendoza and Berger, Academic Capitalism and Academic Culture: A Case Study 2008). Now, however, faculties have become too down to earth and the social mission is forgotten. The division between for-profit and

nonprofit entities is threatened, higher education may be reduced to purely technical and on-the-job-training (Natale, Libertella and Hayward 2001). And, many faculties and scientists now come to tailor their lines of inquiry to where the money is, sometimes with little regard for the ethical and social consequences of their actions (Rhoads 2006).

(4). Lose the function of a social organization to reduce the imbalance of society

Another important function of universities is to become a ladder of social status that can reduce the imbalance of society and break the border of classes in a society. The shifting balance of emphasis, the commercialization of the curriculum, takes public higher education away from expanding educational and economic opportunities for underserved populations. Universities no longer provided access to underserved low-income and minority students. Preferred students become those who are willing and able to pay more for educational services. (Rhoades and Slaughter 2004). The inequality of people in society will become even more hard to change (Gai 2004, 45).

To be noted, this view is, however, also challenged by some other scholars. For example, (Weisbrod, Ballou and Asch 2008) argued that the actual cost of attending universities can be much less than the skyrocketing ‘list price’ of them. If a student can demonstrate a desirable quality of his or her ability or potential, schools usually lower their tuition fee significantly to attract them. In some cases,

students can even be paid if they attend the school.

(5). Hurt The Relationship Between Teacher-Student

The relationship between the service provider and the customer is unique in educational service. It is the teacher-student relationship which stands for a special meaning in most cultures. Marketization, however, might be more a disaster than an opportunity if we take education as commodity and treat teacher-student relationship as market contract (Gai 2004, 45).

2. The Support of Marketization

(1). A Diversified Funding Base is the Key to True Autonomy

Running universities as business might not necessarily damage its core value. Frankly speaking, even the benign source of funding including government support has its own value to pursue. As (B. Clark 2001) argued, different sources clearly bring different problems and opportunities and different degrees of expenditure discretion:

> *Industrial firms want something for their money, and that something is often quite specific; university-industry collaborations involve tough bargaining over contracts, and compromises over whose interest has priority. Government departments, in turn, may offer generous grants, or they may insist on segmental budgeting and tight accounting.*

Some people support the idea of marketization not because they believe in the

power of free market but they don't think government can play a better role. When higher education institutes are funding from government it is control by government and can not really become independent. Only when a university can find enough and diversified funding source, it can become a real independent organization.

Political or other economic force has already influence higher education though many different channels. As (Gilde 2007) argued, the generous gesture allows the donator to improve his status in society and gain a certain degree of prestige. He might also acquire an influential position in an academic institution. This is also pointed out by (Mora and Villarreal 2001, 59) who stated that the government still keeps mechanisms to maintain university dependence though financial support or power in accreditation. Thus, most universities are either public sector entities or tax-exempt organizations thereby being subject to strict rules and regulations that govern the ways in which they may become engaged in commercial activities (Tuunainen and Knuuttila 2009).

(Soley 2000) presented more examples that university curriculum was influence by the donators. Boston University designed a course underwritten by a munitions manufacturer to make journalists more sympathetic to the military. A Japanese business man has given grants for Japanese Studies programs to Duke University to promote pro-Japanese attitudes. Saudi Government has recently given $5 million to Harvard, which will teach classes in Islamic Law.

University-generated income is generally the one with the fewest strings attached (B. Clark 2001). Therefore, in order to help universities to maintain the status of true autonomy, marketization and diversified funding base is the key. As (Babbidge and Rosenzweig 1962, 158)[3] stated "a workable twentieth century definition of institutional autonomy is the absence of dependence upon a single or narrow base of support".

(2). More Funding and Better Industry-Academic Links Bring Better Quality of Higher Education

The marketization of education is resulted from the need of efficiency and quality control (Gai 2004, 36). Every thing needs money. So is the pursue of a better higher education. As examples discussed in (E. G. Miller 2007), Baylor University used funds from their sponsorship agreement with Dr. Peper Bottling Company to fund a new student center while the University of Ottawa started an alumni-student mentoring program with funds from MBNA Corporation.

Although many studies worry about the damage the made by the university-industry linkage, some studies state it otherwise. The survey conducted by (Mendoza and Berger 2008) for example, remarkably found that, contrast to the worries of many studies, faculties in higher education institutes

[3] Cited from (B. R. Clark, University Transformation: Primary Pathways to University Autonomy and Achievement 2002)

found it a highly effective vehicle for enhancing the quality of education of students and pursuing their scientific interests. Recent studies have also indicated that these constraints are not necessarily the case and that faculty are still able to publish, follow their scientific interests, and comply with sponsors' demands simultaneously (Mendoza and Berger 2008)

(3). The Merge of Liberal Learning and Vocational Relevance

If we try not to see liberal and vocational learning from the narrowly-conceived view, we might be able to see the possibility of combination. In the extensive discussion of (Natale, Libertella and Hayward 2001, 111) , the goal of liberal and vocational needs can be put together. The so-called vocational subjects can been seen as the liberal art for the modern society.

III. The Change of Government Support

Universities and colleges are now expected to be responsible for their own financial affairs, growth and development, retention and maintenance (Natale, Libertella and Hayward 2001, 11).

1. The Trend of the Reform

Although, the debate of adopting marketization concept into education is not settled, countries around the world, in a surprisingly accordance, have already adopt the concept into the higher education system due to the shortage of government financial support (Gai 2004). Concepts for funding schemes that

have been debated in Europe and the United States are therefore appearing on the reform agenda of these countries too (Schiller and Liefner 2007). During the last few decades, universities in most countries experience a decrease in the basic public funding for teaching and research (Gjerding, et al. 2006, 87).

As (Gai 2007, 153) discussed, there are three more reasons why governments find it difficult to provide more funding to HEIs. (1) The weakening taxation ability of government (2) More education resources are put into education from elementary school to high school (3) More government resources are put into social care for elder people, health care and public infrastructure as a commitment for election.

2. US

In 1800s, universities in US were supported from complex non-tuition revenues such as largesse from businesses, charitable organizations, alumni and friends enabled institutions (Hearn 2006, 28). In the late 1800s and into the 1900s, the complexity grew further with more research contracts, university hospitals, museums and athletics emerged as new source of funding (Hearn 2006, 28).

From 1980 to 1994, instructional costs per full-time student at private universities increased 48% in real terms; public universities upped research expenses by 35%. In the same time, though, states reduced real, per-student funding to public

universities by 22% [4]. By the fall of 2000, tuition fee accounts for only half of all revenues in public four-year institutions in US and auxiliary enterprise, hospitals, and non-degree-oriented educational services where accounting for a quarter of all revenues (Hearn 2006, 28). Government funding is about one-third in public universities (Gai 2006, 71). In private schools in US, tuition fee accounts for only a quarter of all revenues in 2000 (Hearn 2006, 28). Twenty states cut funding for higher education in 2001 and twenty-five states reduced higher education funding in 2003. Even in states that kept funding level or slightly increased it, enrollment often increased. That meant per-student funding level was still declining. All of the fifty states in US are expected to face budget deficits by 2013 (Meyer 2008)

3. UK

UK government reduce the financial support to higher educational institute from 76% in 1980 to 59% in 2002. (Gai 2004) During 1980s, we've seen the introduction of a "contracting" relationship between public funders and institutions (O'Brien and Deans 1996) and from 1998 British government start to charge tuition fee, about 1000 pounds, for local students (Gai 2006, 71). From 2006, the price ceiling increase to 3000 pounds (Gai 2006, 71). Given this emphasis on performance indicators, sharper focus has been placed on the employability of

[4] Keith H. Hammonds, Susan Jackson, Gail DeGeorge and Kathleen Morris, New University, Business Week, 1997.

graduates, both by external funding bodies and students themselves, when selecting an institution in which to study. (O'Brien and Deans 1996).

4. Australia

Although Australia higher education has become one of the most successful education exporter in the world, the public financing in Australia has now dropped to less than half of the university's total budget (Heyneman 2001). The Australian Vice-Chancellors' Committee reports that funding per effective full-time student fell by 12% from 1983 to 2000, despite student numbers doubling. From 1989 to 2000, student/staff ratios increased from 14.5 to 19.9 (Phillips 2005).

5. Germany

In January 2005, Germany's highest court overturned a federal law that had banned the introduction of fees, thereby paving the way for universities to charge student tuition fees for the first time. (Voss, Gruber and Szmigin 2007) This is, again, the response to the diminishing government support and schools now are funded more directly from students.

6. Canada

In Canada, public funding for higher education declined, not only in relative, but also in absolute, terms (Eastman 2006). By 1999, the proportion of public to private expenditure on higher education was 59:41 in Canada, compared to an OECD mean of 79:21 and to ratios of 52:48 in Australia, 63:37 in the United Kingdom and 47:53 in the United States (Eastman 2006)

7. Asia Countries

The funding reform that consists of government budget cuts, performance based allocation of funds, and a diversification of the funding base are neither limited to western systems of higher education—they affect Asian countries, too (Schiller and Liefner 2007)

IV. Demand Change

1. Mass Participation

(1). The Increased Rated of Participation

From the early years of the university until the end of the nineteenth century, university life was a privilege mainly reserved for the upper class, and in particular for a male audience (Gilde 2007). Even prior to the 1980's, higher education was for the elite – the most intelligent or privileged 10-15% of the population, who had the interest, motivation and ability to learn largely on their own (Phillips 2005). The value of education changes when the mass join the game. The demands for participation are changing student entry into post-secondary education from elite to mass to universal (B. R. Clark 2002)

With the trend towards more democracy has come demands for greater accountability, higher levels of equity, access for larger portions of the population, and greater participation in decision-making (Heyneman 2001). The industrial development in the 20th century relied on the knowledge and skills of an elite few

but that, now, economies depend on the skills and knowledge of all people (Spring 2008).

In Great Britain, the participation rate for young people rose from approximately 12% in 1979 to approximately 32% in 1999. In the United States, the number of 18 to 24 year olds enrolled in post-secondary education increased from 25.5% in 1967 to 35.5% in 2000. In Australia, the number of students in higher education rose from 329,523 in 1980 to 695,485 in 2000 (Phillips 2005).

(2). Mass Participation and Government Support

It is reasonable force of change that when most people get into the university, the university system is difficult to be support by government funding and the curriculum need to be changed to suit the need of the society which is not that important when only elite goes to university. While governments have promoted the increase in enrolments, they have generally not provided universities with sufficient levels of funding to manage the increased student numbers, and many universities have been slow to develop new revenue streams to boost government grants. As funds per student have decreased, workloads and student/staff ratios have increased, placing pressures on institutions and their staff.

Of course, some argue that there is an oversupply of higher education graduates(see (Spring 2008)), but even if it is true, we have not seen any sign of the change of the increasing higher education demand.

2. The Demand of Higher Education is increasing

(1). Knowledge Economy

The competencies required for success in the world are increasingly sophisticated (Natale, Libertella and Hayward 2001, 168). The knowledge and skill required by the current market is much more complicated (Tagg 2008). The demand conditions faced by for-profit schools can be conceptualized as part of the more general demand for the training, skills, and credentials offered in higher education (Breneman, Pusser and Turner 2000).

Previous studies have shown that the demand for higher education is expanding exponentially that by 2025 as many as 150 million people will be seeking higher education(Neill, Singh and Donoghue 2004). The main reasons for the change is the development of the so-called knowledge-driven society and the changing culture of employment where a job for life is no longer the norm (Neill, Singh and Donoghue 2004). Knowledge workers have emerged as crucial players in economic performance and well-being (Davies 1998, 177).

In knowledge economy, more diversified and specialized are demanded. Students are also required to re-trained throughout their professional careers. Therefore, the demand has overload universities (B. R. Clark 2002).

(2). Credential Inflation

The expansion of higher education has been driven primarily by the changing value

of educational degrees in the job market (Collins 2002). The process of credential inflation is largely self-driven – when higher degree means better job, people compete for a better degree and then current satisfactory level become inefficient. All these processes play into and reinforce the cycle of rising educational attainment and rising occupational requirements (Collins 2002, 25). This cycle also creates the political force to drive the government to provide schools for mass participation.

In Taiwan, after the number of university supply is larger than the demand, university degree has became not enough. Now, about half of the job positions require master degrees[5].

3. More Adult Student

The traditional profile of student has been challenged in academic world for at least as early as (Krachenberg 1972) discussed. A substantial proportion of both undergraduates and graduates are not mature student studying part-time (Natale, Libertella and Hayward 2001). Only 53 percent of undergraduate students are aged 18-21 in US (E. G. Miller 2007). A recent report indicated that 72.5% of Australian university students have paid employment during semester, working an average of 15 hours per week. In addition, a relatively large proportion of

[5] 學歷大貶值！【2003-08-04/商業周刊/819 期/P.076 】

Australian university students are mature-aged, with only 27.2% aged under 20 (Phillips 2005).

The for-profit providers now serve a considerable share of the market for mid-career adults, while universities continue to dominate the traditional 18-24 year old market (Brint, Paxton-Jorgenson and Vega 2003)

V. Supply Change

1. Information Technology

Information technology has been suggested, by many previous studies, as one of the most important driving force of the change of education in recent years (for example, see (Natale, Libertella and Hayward 2001, 23))(Phillips 2005) (陳維昭 2001) (Natale, Libertella and Hayward 2001, 167). The information technology not only create new way to deliver contents but bring in more competition opportunities for education market. The impact of information technology should not be taken equal to the most prominent example, e-learning. Many new trends are equipped with the development of information technology. For example, the globalization service industry, including higher education, is very much accelerated by the development of information technology.

2. For-Profit and Corporate Universities

When education become more a product that we buy to get some knowledge and the ticket to job market, it is therefore reasonable to see pure market-oriented

companies respond to the demand. Here are some examples.

University of Phoenix, the DeVr Institute of Technology and ITT Educational Services are now just some of the successful examples of this new business model. Arthur D. Little, Inc., a large management-consulting firm, has established the ADS Little Management Education Institute, which offers an MBA degree. GM has created the General Motors Institute, which provides courses toward a degree in engineering (Natale, Libertella and Hayward 2001).

VI. The Change of Higher Education in China

1. The History

Following the Cultural Revolution in the mid-1970s, China had a shortage of qualified teaching staff and appropriate curricula, resources and facilities from fundamental to higher education. The Chinese authorities decided to borrow knowledge and technologies from the advanced countries. Teachers were brought into universities from overseas and thousands of Chinese students were sent overseas to study for higher degrees. In the past decade, major reforms related to higher education were introduced with the central features of decentralization and marketization (Mok 2003).

By the end of 2004, there are 1683 HEI including 645 universities in China. These HEI are classified into four levels. (Wu and Yu 2006). Generally speaking, the higher education in China is still a ‘seller’s market’ (鄔大光 2004).

2. The Current Trend

According to (X. Wang 2001), the higher education in China also have four trends that we've seen in many other countries:

(1). Decentralization

The burden of financing higher education is shifted from state government to provincial governments.

(2). Diversification of financing

The funding of higher education comes from income from university enterprises, contract training for enterprises, contract research and consultancy, and donations and endowments.

(3). Cost sharing

Cost of higher education is shared by students, parents, and other social sectors

(4). Optimization

Efficiency has been increased through consolidations and mergers among institutions.

(X. Wang 2001) also conclude that with the expansion of enrollments, declining funding from central government, increasing demand for greater quality and efficiency, and ascendance of market orientations and solutions, a new mechanism

of administration and financing has emerged to adapt Chinese colleges and universities to change.

3. Marketization

Almost every aspect of China market has reformed – embracing the capitalism and marketization. So is the higher education market. As (Mok 2003) stated:

> *The emergence of private educational institutions, the shift of state responsibility in educational provision to families and individuals, the prominence of fee-charging, the growth of minban (people-run) colleges and universities, as well as the introduction of internal competition among higher educational institutions have clearly indicated that China's higher education is experiencing a process of marketization.*

Before the economy reform, every thing was provided by government. The educational reform is simply part of the change of the whole China and government has been retreated from almost every aspect of its service. Thus, the marketization of higher education in mainland China can be understood better by examining the interactions between the de-monopolization and de-centralization in the public domain (Mok 2003).

4. Decentralization, Denationalization and Autonomisation

In china, the trend of education reform determined in 1985 also emphasized on the problem of centralized control and focus on making higher education institutes

have more independence and power (戴曉霞 2004, 24). Before higher education reform commenced in the 1980s, higher education governance could be characterized as a "centralized" or "state dominated" model in Mainland China. Under such a governing model, the Ministry of Education took full responsibility for the design of curricula, syllabuses and textbooks, student admission and graduate job assignment and also exerted control over budgets, salary scales and personnel issues (Mok 2003).

Since 1980, the Chinese Government has adopted a policy of decentralization to transfer authority and decision-making from central government to local authorities. Under the policy of decentralization, local governments are given more flexibility and autonomy to chart the course of higher education development (Mok 2003). This trend is also called "autonomisation" which is to allow university academics having more autonomy to conduct research projects of any kind and far more discretion to manage and operate their institutions (Mok 2003).

5. The Demand of Higher Education is High

Affected by traditional culture, Chinese people are very concerned about higher education and there is an urgent need for more access to higher education(Mok 2003). In China, the higher education system is undergoing a transition from elite to mass education (Wu and Yu 2006). By the end of 2004, the number of enrolled students in Chinese higher institutions was close to 20 million, and the enrolment rate was 19 percent. (Wu and Yu 2006). In 2007, the enrolled number reach about

25.7 million[6]

6. The Funding Problem

Despite the post-Mao leaders' discomfort with the term "privatization", signs of state withdrawal from the provision of social welfare are clear (Mok 2003). The funding support for public education from government is not enough. In 2002, the education expenditure accounts for only 3.41% of GDP and most of them are paid by local government instead of the central government (孫霄兵 and 孟慶瑜 2005).

7. The Potential Risk of Shrinking Population

While most people are captivated by the enormous size of education market and the gap between demand and supply, let us not forget the shrinking newborns in China. According to the statistic published by Ministry of Education in China[7], in 2008, although the number of university freshmen is 6.08 million and is 0.417 million more than the previous year, the new student entering elementary schools is only

[6] The number includes Undergraduates in Regular HEIs, Undergraduates in Adult HEIs and Web-based Undergraduates. Data Source: Ministry of Education of China. http://www.moe.edu.cn/edoas/website18/level3.jsp?tablename=1248934683653664&infoid=1249368795095163&title=各级各类学历教育学生数

[7]中华人民共和国教育部 1998, 2008 教育发展统计公报, downloaded on 2010/1/16, http://www.moe.edu.cn/edoas/website18/level2.jsp?tablename=1068

16.96 million which is 0.4035 million less than the previous year and is far less than the number of 1998 which was 21.17 million. The number of newborns is dramatically decreasing. Soon, the base for higher education will be shrinking dramatically as well.

VII. The Challenges Faced by Higher Education Institutes in Taiwan

1. Change of the Value of University

The first article of University Law in Taiwan states that 'The goal of universities is to conduct academic research, cultivate human resources, increase the level of culture, serve the society and assist the development of the country'. From the statement, it is clear that higher education in Taiwan has a strong social mission that serves as the driving force of the development of the science, knowledge and the country. Although the mission has not changed, at least not stated, the way the government wants it to be achieved has changed.

In order to implement the reform of liberalization, the Legislative Yuan in Taiwan passed the law of public university fund in 1999 in order to (1) reduce government financial burden (2) re-allocate government resources (3) increase the financial control efficiency of universities (4) increase the management efficiency by not handing over the balance of annual budget. Before that 80% of public university funding was from government and now it has became about 50% (Gai 2006, 69)

When the concept of marketization has been introduced to higher education market,

some scholars in Taiwan have also started to look for responses from Taiwanese higher education institutes and government (Gai 2004). One of the suggestion from the Education Reform Committee[8] in 1997 to Taiwanese government was "we need to enhance the marketization of higher education market. Let government control public school and liberalize private schools to respond to the needs of our society" (Gai 2004)

The trend of marketization in Taiwan might, of course, bring Taiwanese higher education to crisis. As (陳維昭 2001) worried, the pressure of find more funding source and the interaction between universities and industry forces schools to spend time and energy on funding activities that has nothing to do with teaching and researching. And, the worst part, it might affect the academic freedom, lead the result or the direction of research and ignore the importance of fundamental research.

And, furthermore, the function of higher education in Taiwan includes not only research and teaching but also continuing study, vocational training, consulting and policy research (莊英慎 and 林水順 2003). The change of the value of university not only challenge the core function, education, of higher education institutes but also the social service functions.

[8] 行政院教育改革審議委員會(簡稱教改會)

2. Change of Government Support

Funding problem has become a critical issue for higher education institution around the world and became the driving force that shape universities now and in the future (Slaughter and Leslie 1997). The universities now are financial pressure from many different sources: diminishing government support, increasing cost and stronger competition (Davies 1998), (Natale, Libertella and Hayward 2001, 35). Higher education institutes in Taiwan also face similar problems and the finding new sources of funding become critical. (莊英慎 and 林水順 2003) (蘇進棻 2007, 127). In 1990s, the government funding for each student in public school decreased by 20% (陳維昭 2001)

Currently in Taiwan, Ministry of Education is de-regulating the higher education and asks universities, including both private owned and public supported ones, to be financial independent. (林俊彥, et al. 2006) And the liberalization of higher education is getting more and more popular (Mok 2003).

In order to reduce the state's financial burden, different market-related strategies are adopted such as increasing student tuition fees, reducing state allocations, strengthening the relationship between the university sector and the industrial and business sectors, and encouraging universities and academics to engage in business and market-like activities to generate revenue (Mok 2003).

The last but not the least problem is HEI Positioning and Resource Allocation.

Although the university planning committee[9] in Taiwan define universities according to four categories, say research, teaching, professional and community, the management and resource allocation is not designed accordingly (Gai 2004, 42). The research-focus universities can't received enough funding for research and teaching-focus universities are required to provide teachers with enough research-related qualification (Gai 2004, 42).

3. Decentralization and Liberalization

The fundamental changes in Taiwan's higher education sector since the late 1980s can be conceptualized as processes of denationalization, decentralization and Autonomisation (Mok 2003). The government has begun to forsake its monopoly on higher education and allow universities to enjoy a certain degree of autonomy and thus need to support for themselves. One of the recommendation of the education reform committee in 1997 was to encourage the marketization of higher education. And, following the recommendation, Taiwanese government started to liberalize the higher education system and moved from centralized control to a more marketization approach. (Gai 2004)

Although the reform of education has been started for many years, in many aspects, the higher education is Taiwan is still not free enough. For example, in order to

[9] 大學宏觀規劃委員會

let market become efficient, pricing is part of the mechanism. In Taiwan, although HEI can decide higher or lower 10% than a standard, it's not enough (Gai 2004, 43). And, the market entrance and exit mechanism in Taiwan is suspicious. There are three problems raised by (Gai 2004, 43): it is decided by Government not the market; it includes only private schools; it is decided according to the evaluation and the number of students enrolled.

4. Bureaucratic Government Constraint

The processes of "decentralization" and "Autonomisation" have become increasingly popular in Taiwan, but the idea of song-bang (liberalization or Autonomisation) should not be understood as the total withdrawal of the state (Mok 2003). Universities are still facing many constraints that strangling the development of higher education. Two of them are fixed faculty salary and tuition fee (Huang 2010) (Lu 2010).

5. Change of the Environment

In addition to the change of government attitude, other factors also contribute to the funding crisis for higher educational institutes.

(1). Diminishing Student Base

The number of newborns in Taiwan decrease about 50% from 413,881 in 1980 to 216,419 in 2004 (林俊彥, et al. 2006). And it will further reduce 50% by 2020 (蘇進棻 2007). The diminishing student base is one of the most difficult

problem faced by many private schools in Taiwan. In 2009, the total higher education over-supplied 6,800 seats.[10] 10 to 15 years later the university new comer will be only half of the number now[11].

(2). Competition from Other Higher Education Institute

The number of higher education institutes has increased dramatically. In 1950, there were only seven higher education institutes. Before 1985, the education market is relatively constrained and oligopoly, and new private university is not allowed (林本炫 2006). But, soon after the lift of the ban, by the end of 2005, the number of higher education institute increased to 162 with the number of student enrolled reached 1.3 million. (蘇進棻 2007). Taiwan has one of the highest higher education institute enrollment rate in the world and most high school student can easily get into a higher education institute without too much difficulty. This also implies the oversupply of higher education institute in Taiwan. (Choi 2003)

More and more universities are using different marketing mechanisms to attract students. Some schools provide free laptop computers to new enrolled freshmen

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[10] 台灣三大高教風暴 【2009-10-21/天下雜誌/433 期】

[11] 15 年後台灣的大學將過剩 30 多位校長疾呼：開放陸生來台【2007-06-01/遠見雜誌/252 期】

or the funding the can help graduates to create their own business[12]

(3). Competition from Other Private Institutes

In discussing the challenge of continuing education, (林俊彥, et al. 2006) pointed out that private educational service provider in one of the main challenge for higher educational institutes.

(4). Global Competition for Students

Taiwan has long been a net import country for higher education. In 2008, the number of Taiwanese student applying for student visa of other countries is 37,800 while only 16,909 foreign students come to Taiwan and only 6,258 of them are pursuing for degree program[13].

As China becomes one of the most important markets for Taiwanese economy, the higher education institutes are also attracting Taiwanese students. Chinese Ministry of Education provided many incentives to attract students and encourage universities in China to intake students from Taiwan. For example, from 2005, Taiwanese student pay the same tuition as local students and each school can earn

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[12] 經營大學，要營利還是名聲？ 【2001-03-05/商業周刊/693 期/P.094 】

[13] Data source: Ministry of Education, Taiwan, 2009/12/20.
http://www.edu.tw/statistics/content.aspx?site_content_sn=8956

8000 RMB subsidy for each Taiwanese student (蘇進棻 2007).

(5). Global competition for Faculties

In addition to internal competition, Taiwanese HEI also face the global competition of students and teachers due to the lower-than-competition pay-rolls (莊英慎 and 林水順 2003)[14].

[14] 教授轉戰香港 龍應台籲：加薪留才 【2009-12-15/聯合報/AA4 版/教育】,李遠哲嘆：教授薪比港差 3 倍 【2009-11-13/聯合報/AA4 版/教育】,陸吸人才 南京大學 向台灣醫科教授招手 【2009-11-12/聯合報/AA4 版/教育】

Research Objectives and Methods

I. Research Objectives

The change the government support, public perception, political philosophy and economic conditions challenge the higher education institutes around the world. Resolving the funding problem has been one of the most important goals in the management of universities.

In this study, we try to use the recent development of service management and service innovation knowledge to analyze different strategies that higher education institutes around the world have adopted and provide suggestions to Taiwanese universities and government.

Although education has quite often been mentioned as an example of service (for example see (Oke 2007) (Lee and Chen 2009)) and seldom be questioned, there is little academic research really analyze education with the framework we use to analyze service. In Taiwan, even a broader field, service marketing in education, is rarely been studied. According to (魏惠娟 2006), there were only 1.6 papers on average per year for the past two decades. We believe, however, by taking education as a service or even an customer-oriented industry, we'll be able to overcome some of the funding problems faced by higher education institutions now.

In summary, we try to answer the following questions in this study:

i Identify the change and challenge of value and funding faced by higher education institutes.

ii Discuss the characteristics of education from the service management perspective.

iii Analyze recent educational innovations with the framework of service innovation proposed by this study.

iv Provide suggestions and discuss the difficulties of them to the higher education institutes and government in Taiwan.

II. Research Method

Since there have been very few studies trying to analyze educational service based on service marketing, service innovation or new service development researches, this study is taken as an explorative study that tries to link the recent development of service management findings to resolve the problem in education sector.

1. Literature Review and Analysis

Literature review and analysis is a survey of relevant articles, books, news and other sources pertaining to the research topic. In this study, we focus on the following topics

(1). Higher Education in Crisis

In order to understand the current challenges faced by higher education institutes and have a more comprehensive picture the problem in different countries

including developed countries and China and Taiwan. We read through previous studies and categorized them into few sections of recent challenges. Since this study is to apply the theories of a discipline to the other, it is the essential to analyze all the related information and previous studies as the foundation. The previous studies of the current situation in Taiwan, however, is relatively scarce. We, therefore, have to collect more information from other sources such as newspaper, magazines and TV interviews.

Research subjects covered in this study includes the value of university, the funding problem and the change of government support, entrepreneurial university, for-profit university and academic capitalism.

(2). Service Management and Marketing

For service operation management and marketing, we also select only relevant topics. These topics include the characteristics of service, the taxonomy of service, the models and patters of service innovation.

We tried to find previous literature that apply service innovation models to educational service. But, it seems that, although many studies mentioned that, but there is no one really apply the concept of service innovation to the discussion of educational service.

(3). Education Innovations and New Funding Sources

In order to understand how schools respond to the change of the environment, how schools make money is analyzed. The topic we studied includes educational service, e-learning, corporate training, globalization of service, vocational education, university-industry collaboration, educational policies of different countries and so on.

2. Semi-Structured Interview

(1). The Concept

Interview is another way to collect information about the current educational market in Taiwan. Structured interview is about to collect different options with a list of questions defined beforehand. If information from a number of respondents is to be combined, as in an attitude survey or opinion poll, then a structured or standardized interview is desirable (Sommer and Sommer 1980).

When it is more appropriate to let interviewee select the sequence of the question or to modify the question according to the special characteristic of the interviewee, then the methodology is called semi-structured interview (Sommer and Sommer 1980).

In this study, we did not customize the questions for interviewee but since the interviewee sometimes answered the other questions when they were explaining the answer of one of them, we did not insist on the sequence of questions.

(2). The Selection of Interviewee

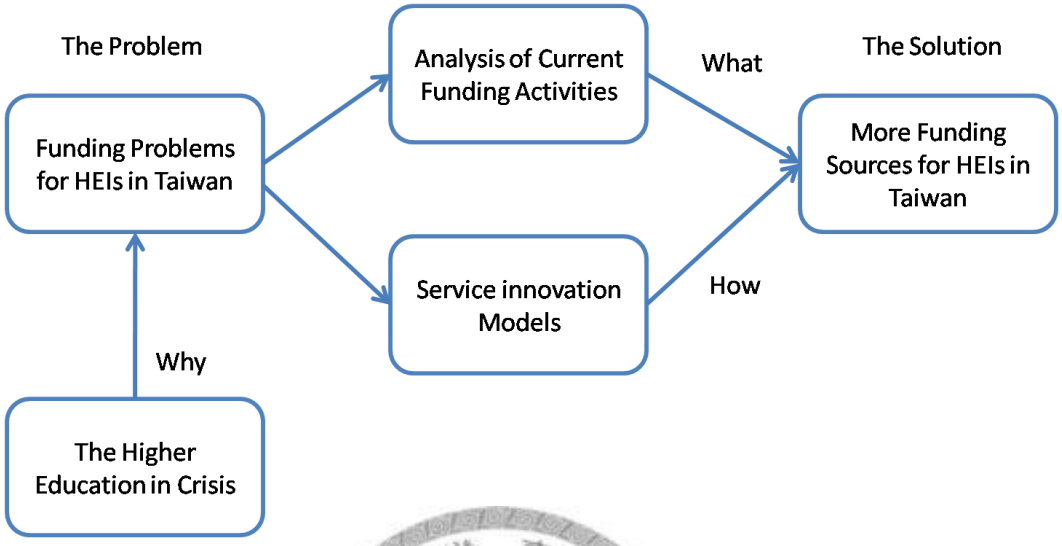
Two interviewees were chosen in this study. Professor Chung Hsing Huang is the ex-dean of the extension school of National Taiwan University. National Taiwan University is best public university in Taiwan and receive the most government support every year. The view of professor Huang can represent the view from public school and help us to see the challenges face by public schools in Taiwan. Professor Hsing Ke Lu is the CEO of the school of continuing education in Chinese Culture University. The commercial-oriented culture of the school can be seen immediately from the title of the position. Chinese Culture University has the most successful private extension school in Taiwan in terms of the revenue, the profit, the number of employees and the number of students enrolled. The view from professor Lu can reflect the change that private schools are taking right now to respond to the change of the environment.

3. Research Structure

We begin this study with the search of the solution to a question. The problem was the funding difficulties for higher education institute in Taiwan and the solution should be new funding source.

In order to find the solution, we thought we can either learn from the experience of current practice in Taiwan and other countries, and adopt knowledge from another successful field – service innovation. And, in order to understand the problem more deeply, we also planned to spend some time on the crisis of higher education.

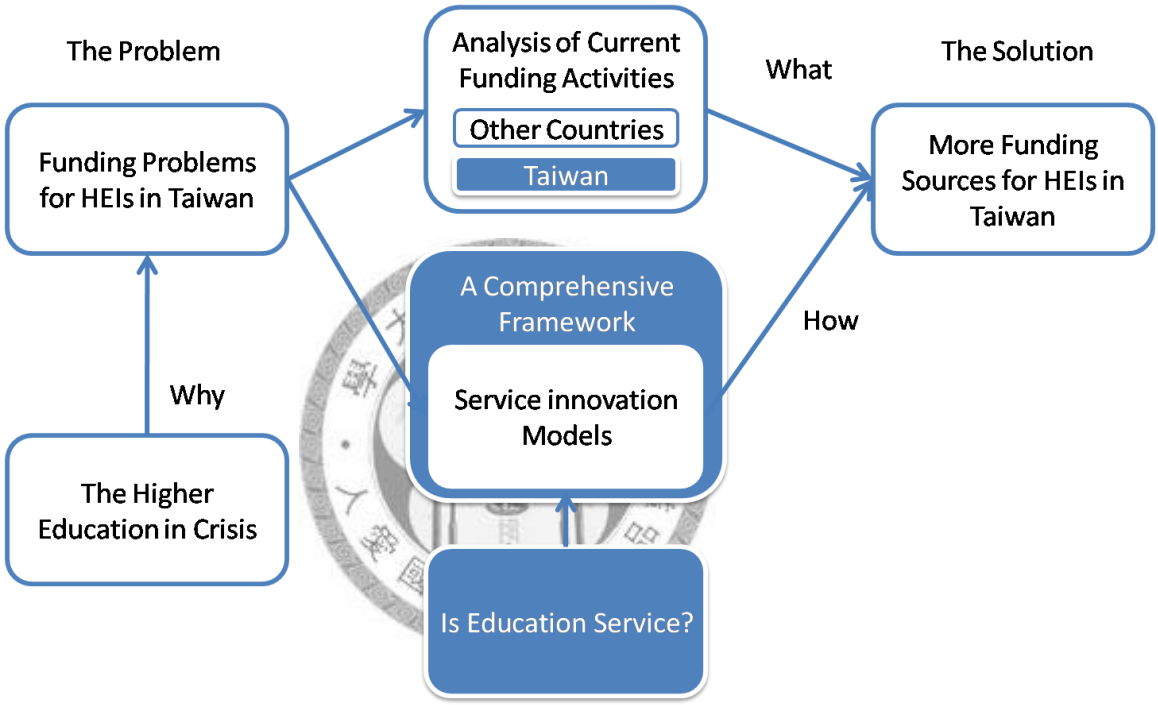
Figure 1 Research Structure (Begin)



During the research process, we have however encountered few problems. First, the previous research and report of funding activities in Taiwan is not enough. We can't get enough information from second hand source. Therefore, we've decided to conduct interviews to collect first hand information. Second, although there have been many studies about service innovation model, none of them is comprehensive enough to explain the educational service activates. A new framework is needed for further studies. Therefore, we proposed a new framework and tried to apply it to help us resolve the funding issue from service innovation perspective. Third, in applying service innovation models to education, we were confronted with a question that whether or not education is service. Although, education has been taken as service for a long time, we have not seen anyone really discuss it. In order to fill the gap, we've spent some time to analyze

education from service perspective and summary the characteristics of education from service management concepts. The final research framework can be seen below.

Figure 2 Research Structure (Final)



III. Interview Findings

1. The Challenges Faced by Higher Education Institutes in Taiwan

Both public and private schools are facing challenges of funding in the last decade. The problems are , however, different. As a public school which used to enjoy abundant government funding, it has been a big challenge for National Taiwan University that it has to find more funding itself. But, according to Huang, that is

not the biggest challenge. The worst problem is the bureaucratic regulation that make public school difficult to utilize the would-be enough funding. In private school, on the other hand, since they are used to survive without government support, the most difficult problem now is the over-supplied (and therefore extremely competitive) education market. While the number of newborns is diminishing and the number of supply has already been more than demand, it is commonly expected that at least 50 of the 169 higher education institutes in Taiwan will exit the market.

2. New Funding Sources for Public and Private Schools in Taiwan

Public schools, especially those with abundant heritage from history, have many sources to find new findings although the source is also highly regulated by law. Taking NTU for example, it utilizes well the five funding channels defined by the law: donation, school-owned facilities, continuing education, industry-university cooperation, and limited selection of investments. In addition to donation and continuing education, school can also make money from the operation of gym, hospital, the university-owned forests and lumbering. School can also get abundant sponsor from the national science committee and research project from industry. Private schools, however, don't have so much diversified source of income although they not more restricted by law. With little support and resource from government, the majority of funding is still the tuition. Chinese culture university, with the most successful extension school, get about 20% of its funding from continuing education.

3. New Course and Degree

Both public and private schools try to adapt to the environment by providing consumer-oriented innovative courses to them. But, this is true for non-degree programs. In Taiwan, since the degree-granting program is highly regulated, the room for degree innovation is small.

Both NTU and CCU provide continuing education in more locations and both of them provide training course for corporation. If taking government into the consideration, B2B market is still a very important part of funding source of CCU.

4. International Market

Both NTU and CCU found only limited opportunities for international market. Nor of them feel the competition from other countries.

5. The China Market

There are basically two ways of Taiwanese university to enter the market of China, go to China or attract students from China. As Lu argued, it is relatively easier for Taiwanese school to attract for-degree students from China and to provide non-degree education in China. The reason is, students from China can come to enjoy the resource of universities in Taiwan and earn a degree. Since it is more complicated for schools to establish a new campus in China, Taiwanese school won't establish campus in China in a short time. On the other hand, since Taiwanese schools are very experienced in non-degree business, we can take

advantage of that and open new business in China. The enrolment, however, has some potential risk, as mentioned by Huang. Chinese government still used to deliberately exercise its political power in every aspect of interaction with Taiwan. Can the education be free from the intervene of Chinese government is still a question.

6. Industry-University Link

In public schools, there are more resource for industry-university cooperation. But, due to the bureaucratic regulations, very often a chance is missed due to the lack of motivation. In private school, such as NCC, only limited cooperation or knowledge transfer take place. It is now still not a main source of funding in private schools in Taiwan.

7. E-Learning

E-learning was under the spot light for many year. In reality , it has not been as successful as most people thought. The main difficulty is both schools and students are not really ready. Schools need to spend enough effort and invest more on developing e-learning courses and students need more time to get used to the new learning model. E-learning so far is still more a highly-expected experiment than a funding raising mechanism.

8. The Organizational Innovation

(1). Organizational Structure

In both public and private schools in Taiwan, new organizations were established to

respond to the funding challenges. In NTU for example, a new position Chief Financial Officer was created to organize activities related to funding. In private school, the structure change can be even more dramatic. The SCE in CCU now adopt a project based organic structure that most of the 400 employees are divided into smaller groups of few to dozens. A new team is establish when a new market emerge and dismissed when the school no longer provide the product.

(2). Human Resource

The challenge that public school are facing is the salaries and motivation are highly constrained by regulations. The wage is fixed so there is no incentive for faculties, as employees, to help the organization to resolve the problem of funding. There are although less constraints on how private schools spend their money, the intuition, which is the largest part of income for most of the universities, however, is regulated by the government. Without a flexible mechanism to raise more funding from tuition and also be request to provide a high faculty/student ratio it is difficult for private school to pay more for faculties and enough them to do more funding related actions. The result is the same for both private and public schools.

Part-time professional faculty, in Taiwan, is also not a favorable choice in degree-granting programs. This is caused by the inflexible regulations of the quality of faculties and because school are required by provide a high full-time faculty/student ratio.

Educational Service

I. The Definition of the Educational Service

The definition of service serves as a basis for the development of all the theories and case studies in the past and the future. As (Gadrey 2000) puts it: “Vague concepts and fuzzy definitions of services may lead to inappropriate product and industry classifications, and encourage erroneous modeling of the growth of services.”

Despite the importance of the definition, there is still no consensus today among all researchers in the definition and theoretical characters of the service activities. The diversity of the nature of service means that any generalization of the nature of services must be qualified by numerous exceptions (Miles, Innovation in Services 2006). In this study, we try to define education as a service, but we also understand there are numerous exception in our study.

Before discussing whether or not education is service, we begin with definitions from other sauces.

1. NAICS Definition

The definition of educational service according to NAICS[15] 2007 is the industries that "provide instruction and training in a wide variety of subjects. The instruction and training is provided by specialized establishments, such as schools, colleges, universities, and training centers."[i] (Heyneman 2001) defines it similarly: educational services includes programs provided in elementary, secondary, under-graduate, post-graduate, vocational and technical education, early education, childcare, special education, adult and continuing education, through corporate training, distributed learning, and technology-based training.

According to the data released by US Bureau of Economic Analysis[16], the value of GDP added by educational service is 67,634 billion US dollar in 1998 and the number doubles after 10 years. In 2008, the value added by educational service[17] is 138,254 billion US dollar and is about 1% of US GDP. Using the 2007 output data, we can see that 16.16% of the output is Elementary and secondary schools, 58.95% is Colleges, universities, and junior colleges and other educational services accounts for 24.44%.

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[15] North American Industry Classification System, http://www.census.gov/eos/www/naics/

[16] BEA website: http://www.bea.gov/industry/gpotables/

[17] According to the information guide on BEA website (http://www.bea.gov/industry/iedguide.htm) , the definition of educational service for BEA is the same as NAICS.

2. A Broader View

The definition of NAICS, however, covers only a very limited part of the educational service, says teaching. higher education is not a single output but a range of different educational products (Breneman, Pusser and Turner 2000). According to the classification in (Heyneman 2001), there are three educational service: educational program, educational goods and educational services.

(1). Educational Programs

Educational programs are provided in elementary, secondary, under-graduate, post-graduate, vocational and technical education. They are also provided through early education and childcare, special education, adult and continuing education, through corporate training, distributed learning, and technology-based training. The education program is generally the core of educational services and is equal to the narrowed definition discussed above.

(2). Educational Goods

Educational programs, however, cannot operate without educational materials and equipment. These constitute the industry in educational goods. Relevant commercial activities include the design, manufacture and sales of textbooks, teaching materials, vocational and scientific equipment, educational software, videos, multimedia, and school furniture as well as school supplies.

(3). Educational Service

Materials and equipment cannot be used efficiently unless there is available a supply of high quality education services such as the design, marketing and sales of testing, certification, test preparation, tutoring and other enhancement programs, management consulting, administrative and human resources — accounting, pension, health care, in service training.

3. The Market Size

The estimated market size varies from study to study based on different assumptions and scopes.

With a much broad definition, (Heyneman 2001) cited the report from EduVentures, a Boston-based consulting firm, and assert that the education and training industry is the 2nd largest industry in North America that accounts for about 10% of the GDP. Education services constitute the 5th largest service export $US 8.5 billion in 1997. 26 billion were spent on education-related goods and services in 1997. These included: $US11.6 billion on textbooks and supplementary materials, $US 4.8 billion on technology, $US 3.0billion on testing and test preparation. Within the government and corporate sector, $US 9.6 billion was spent on goods and services, $US 6.1 billion on Information Technology (IT) training.

(Breneman, Pusser and Turner 2000) estimated the total education industry to be about 700 billion dollars a year. Higher education expenditures are generally estimated at about 200 billion dollars, for an enrollment of about 14 million

students (Breneman, Pusser and Turner 2000). (戴曉霞 2004, 20) stated that the educational service is the 4th largest service industry in US.

II. Is Education a Kind of Service ?

In order to define education as a service, we need to examine the characteristics of services and to determine whether education is a kind of service. If education is a kind of service, we're also interested in what kind of service it is.

1. Good-Service Dichotomy

Early studies of service emerged from studies in manufacturing. service industries as mainly supplier-dominated sectors developed along with technology changes. (Den Hertog 2000) Therefore, the traditional definition of service is to emphasize on the difference of service and product.

(1). What are goods

The debate on the distinction originated with (A. Smith 1776) who characterized service as unproductive activities. In ninetieth century, goods and service are divided as material product and immaterial product. (Senior 1863). In the first half of twentieth century, the marketing discipline still has a strong "goods" orientation. In academic courses in marketing, only tangible goods are considered (Rathmell 1966). Now, the modern economists recognize both tangible and intangible goods. (See (Hill 1999) for more discussion)

Classical economists posited that goods must be entities over which ownership rights could be established and exchanged. (Lovelock and Gummesson 2004). Goods are entities of economic value over which ownership rights can be established. They exist independently of its owner and preserve its identity through time and the owner of a good derives some economic benefit from owning it (Hill 1999)

(2). What are services

The economics literature is full of statements to the effect that goods are material, or tangible, whereas services are immaterial, or intangible. (Hill 1999) On the contrary, service defined as the result or the process that is not storable and transportable.

In contrast to a good, a service is not an entity that can exist independently of its producer or consumer. Therefore, services cannot be traded independently of their production and consumption. (Hill 1999)

Yet another way to define the difference is by focusing on the characteristics of service. As (Peng, et al. 2008) argued there are more differences between services and products: first, services are heterogeneous, and goods are identical; second, services are usually intangible, goods are normally tangible; third, services are expectation-related; goods are utility-related; fourth, services are reusable in its life cycle, goods are recyclable; finally, the objective of services is customization,

goods are concerned with reliability.

(3). The problem of the dichotomy

i The border is vague

The dichotomy of service and goods is, in both practice and theoretical researches, actually vague and fuzzy. As (Gadrey 2000) argued, when a wholesaler sells goods to a retailer, their location in time and space and sometimes certain other characteristics relating to their availability. Is his output made up of these goods in the final stage of their "distributive state"? In this case, the wholesaler's activity can be said to fall within the sphere of material production. Therefore, many researchers agree that although products and services are fundamentally different, they are intimately and symbiotically linked, so they are very difficult to be separated. (Bouwman and Fielt 2008)

ii The nature of co-existence

Some experts on services have made considerable efforts in recent years to stress that goods are also defined by the 'services they provide' (Gallouj and Weinstein 1997) And manufacturing is becoming more like services and this is affecting the innovation process. (Howells 2000) For example, IBM and Siemens now derive more than 50% turnover from service activities, whilst other service companies, most notably in the computer industry have completely exited from manufacturing such as ICL in the UK (Howells 2000)

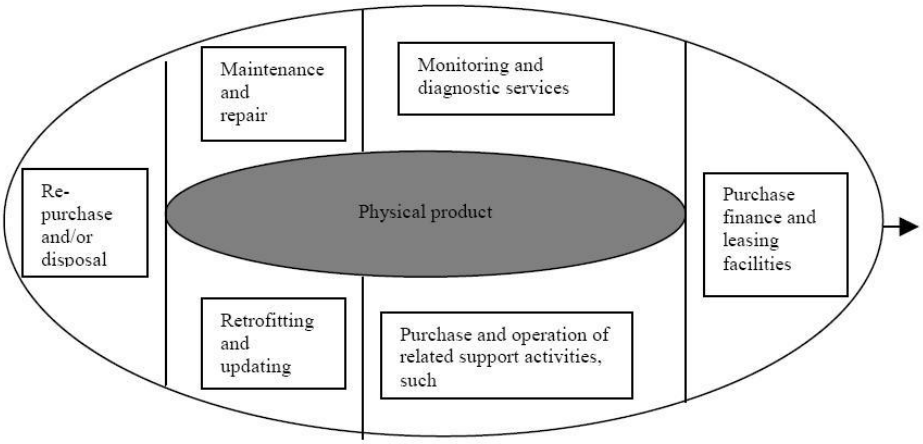
Nowadays, service is no longer a supplementary part of products. In some recent studies on service, some studies even suggest that goods are also defined by the services they provide (Gallouj and Weinstein 1997, 540)

(4). Service encapsulation and servicisation

Another way to connect service and goods together is to use the service encapsulation view or servicisation of products.

The trend of servicisation can be seen in many industry. (Howells 2000) took car manufacturing and aerospace industry as examples. Both Aerospace and vehicle manufacturers have also substantial maintenance and repair operations, associated with 'after care' activities. Vehicle manufacturers also buy back cars and trucks for second hand sales. Some of them, even get into car disposal and recycling business in the trend of environmental awareness. Ford, as an example discussed in (Howells 2000) , involved in finance (Ford Credit), maintenance and car components (Visteon) activities and more recently moving into car insurance and general after-care activities. And, aerospace engine manufacturers, as another example discussed in (Howells 2000) , now providing engines not as a product (an engine) but as a service (hours of flight). Computer industry, yet as one more example discussed in (Howells 2000), offering not only machines but also computer services to meet certain tasks.

Figure 3 Service Encapsulation by (Howells 2000)



The contribution of consultants, specialist design and engineering service firms, environmental service companies, software systems designers and integrators, research contract companies and other technical service organizations have all highlighted the central role that service companies can play in the innovation process. And drive the change of manufacturing like “tail” wags the “dog” (Howells 2000)

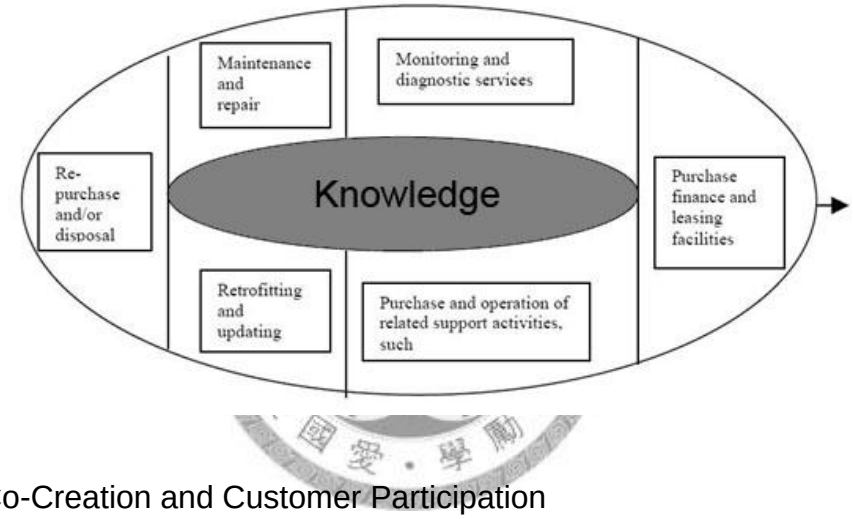
(5). How about education?

In summary, as long as we agree with that education can be a product that people pay to gain knowledge, it is a service. Even publishing a book can be seen as a service. Using marketing terms, when readers buy book, the core product is knowledge. Books are simply the media carrying the knowledge from the writer. Most price we pay are for the knowledge, the printing, the distribution and the

storage – after all, we're buying books instead of a bind of papers.

From the service encapsulation point to view, if we define knowledge as the core product or the benefit an education system wants to deliver, then we can also take education as a service to deliver a product.

Figure 4 Educational Service Encapsulation



2. Value Co-Creation and Customer Participation

Client participation is yet another fundamental characteristics of service activities (Gallouj and Weinstein 1997) (Miles 2008) The most basic form of education is the teaching and learning activities. While the student is a must in the process, it definitely fits the concept of value co-creation process. Of course, some part of the teaching can be stored, but this doesn't mean the customer is not required. Without students learning the material, education can not be complete and there is no way to avoid it.

(1). Definition

Service can be defined as the value co-creation process involves both service provider and consumers. It involves relationships between producers and consumers and both of them must exist since a service must be provided to another economic unit. ((Hill 1999) (Bancel-Charensol and Abramovici 2004)). According to (Grönroos 2007, 52) , a service is a process consisting of a series of more or less intangible activities that normally, but not necessarily, take place in interactions between the customer the service provider.

From the value creation point of view, the value-creating process is the co-creation of value among providers and customers. A service provider can only create a value proposition, while customers must be involved for the value co-creation to occur. (Michel, Brown and Gallan, Service-Logic Innovations: How to innovate customers not products 2008). Customers can be seen as complementary to enterprise in the process of value creation. (Michel, Brown and Gallan 2008). The customer is present and affects the result in terms of added value and quality. (Edvardsson and Olsson 1996) A service deliver a bundle of benefits to the consumer through the experience that is created for the customer. (Gustafsson, Edvardsson and Sanden 2002)

Customer participation may take different forms. For example, that customers can supply three types of resources during a service encounter, namely (Kotzé and Plessis 2003):

i Mental inputs

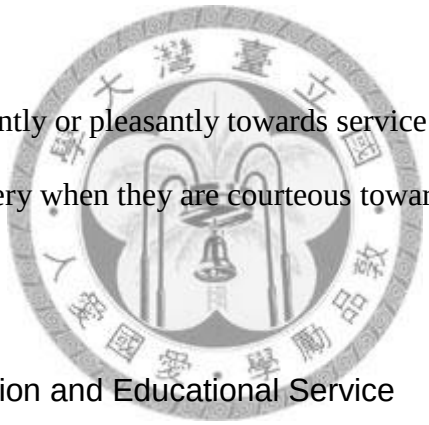
including information and mental effort (e.g. students exert substantial mental effort when preparing a research paper).

ii Physical inputs

including making tangible assets available that are needed for service delivery or performing physical labor (e.g. students conducting a chemistry experiment perform physical labor).

iii Emotional inputs

such as behaving patiently or pleasantly towards service employees (e.g. students facilitate service delivery when they are courteous towards lecturers and/or administrative staff).



(2). Customer Interaction and Educational Service

A college education calls for extreme level of participation (Smith and Cavusgil 1984, 107) (Kotzé and Plessis 2003). As (Michel, Brown and Gallan 2008) stated:

> *In traditional marketing research, the customer becomes the buyer who makes choices. Both concepts correspond to the concept of value-in-exchange, which is based on the paradigm that value is produced independently of the end user and can be defined prior to consumption. This traditional approach negates the new, empowered view of the customer as co-creator of value.*

For education, there is no doubt that the value is created via a process participated by both the service provider (the faculty) and the customer (the student). From this perspective, education is definitely a service.

Students actually "co-produce" their education (Kotzé and Plessis 2003). Because students are active participants in the delivery of educational services, some services-marketing theorists argue that they should be regarded as "partial employees" of tertiary institutions (Kotzé and Plessis 2003)

3. Intangibility

(1). The definition

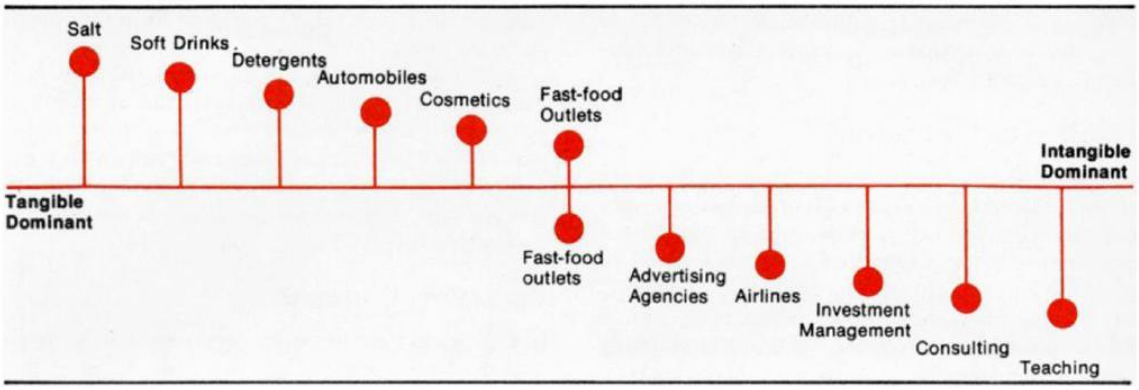
Intangibility is the fundamental and even critical difference of service and product cited in literatures. (Zeithaml, Parasuraman and Berry 1985) (Bateson 1979) (Bouwman and Fielt 2008) (Miles 2008) The intangibility of service is, however, challenged by some other researches. As (Hill 1999) argues, using intangibility to separate goods and services is casual and conventional rather than scientific. The nature of an immaterial product is not well-explained. There are intangible goods, which might not be service, that play a major role in the information economy. (Hill 1999)

(2). Education is Intangible

Education is the process that knowledge is passed from teachers to students. As (Shostack 1977) classified, teaching is intangible dominant on the spectrum from

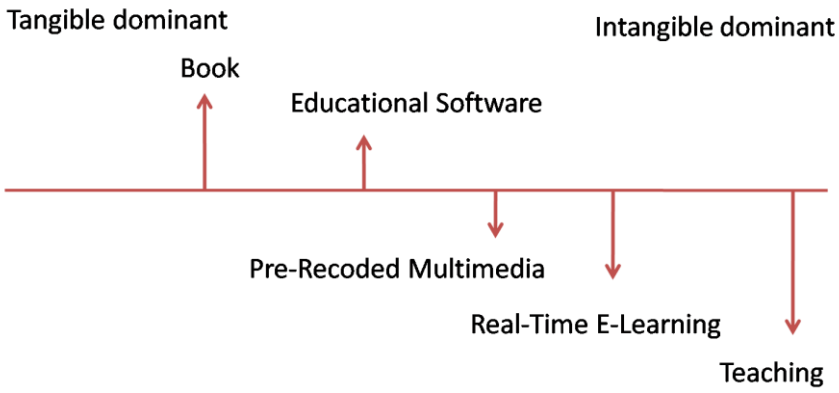
tangible to intangible. Education by nature is an intangible product and therefore higher education institutions must rely on their trademarks, branding and reputation for identification within the marketplace (Morony and Hill 2009). Therefore, education is more a service than goods. From this perspective, education is of course a service as long as we agree with the more arguable premise – education can be taken as a product.

Figure 5 Scale of Market Entities (Shostack 1977)



With the broader definition of educational service, however, we will find different educational services are scatter from goods to service. While teaching is more intangible, book is a type of educational service but it is tangible dominant.

Figure 6 Educational service spectrum from intangible to tangible dominant



4. Inseparability of production and consumption

(1). The concept

While goods are usually produced first then delivered to customers, services are often produced and consumed at the same time. (Zeithaml, Parasuraman and Berry 1985) According to (Gallouj and Weinstein 1997): 'A good usually acquires an autonomous physical existence and it has a high degree of exteriority relative to the individual who produced it and the person who is going to consume it.' (Miles 2008) calls it "Co-terminality"—Service product, process, and service consumption take place at the same time and place. And (A. Smith 1776) had already discuss this in his classical book: "… generally perish in the very instant of their performance, and seldom leave any trace or value behind them, …"

As (Gadrey 2000) argues that the outcomes of many service activities are lasting

and may even be susceptible of accumulation. For example, if the service activities constitute genuinely material changes in the realities on which service provider's work, like cleaning a table, then the output become sustainable. In fact, many services we see today are storable. For example, in order to response to customers' need quickly, it is very common to prepare in advance. When a lawyer is going to serve a customer, he or she can prepare some answers in advance, "store" in his memory, and reply to the customer when a question is being asked. To find the answer and to memorize it in advance is part of the service, and it is not as perishable as many other physical goods such as fresh fruit.

In the case of goods, the distinction between product and process, which is a useful analytical tool, although sometimes difficult to use, is widely accepted. The same is certainly not true of services. (Gallouj and Weinstein 1997) One of the most distinctive characteristics of services is their process nature (Bitner, Ostrom and Morgan 2008). Products are tangible objects that exist in both time and space; services consist solely of acts or process(es), and exist in time only" (Shostack 1982) Services can be viewed as processes rather than objects, requiring the new service developer to consider far more than just the design of the service per se." (Syson and Perks 2004) As (Miles 2008) discussed, service has low portability—the difficulty of storing and transporting service products. The service provider or client may need to move, and services export is thus often overshadowed by other modes of presence, such as foreign investment, franchising, and professional partnerships (Miles 2008).

(2). Is Education Separable or Perishable?

Education is basically inseparable. Teaching and learning are usually produced and consumed together. Except the written or other recorded content, education usually be consumed right away after the creation of it. It's the characteristic of inseparability. Therefore, education has this characteristic and therefore more service than product. However, with a broader definition of education, the pre-recorded multimedia education, published books and education software are of course the exceptions. Still, we can agree with that for most part of education, it is a service. But, the technology and different application of technology have indeed blurred the border. And, even though we can record the content, the most cherishable part of the education is the interaction between teacher and student. Education is thus perishable and has the process nature.

Usually, in service industry, customers may either move to the service provider, or the service provider can move to meet them. International education services traditionally involve the student coming to the institution to complete their courses. However, this is changing, with the establishment of offshore teaching programs and distance education. Modern technologies have also enabled remote service delivery (Mazzarol 1998)

5. Heterogeneity

(1). The Concept

Services are potentially highly variable. Since services are typically provided

with human interaction and human behavior is hard to be standardized, the quality and essence of a service can vary from producer to producer, from customer to customer, and from day to day. (Zeithaml, Parasuraman and Berry 1985). The heterogeneity of services poses significant problems in the area of quality control and standardization (Mazzarol 1998). Heterogeneity in service output is a particular problem for labor intensive services (Zeithaml, Parasuraman and Berry 1985).

As (Zeithaml, Parasuraman and Berry 1985) and (Mazzarol 1998) pointed out, it's very hard to standardize the quality and essence of a service especially for labor-intensive services. It is very true for education where most of the service is conducted by different people. Publishing and e-learning are two of the only few examples that education can be massive produced. Most education, from kindergarten to higher education, are performed by different instructors. The problem that mentioned above is particularly true for education sector.

(2). Is Education Heterogeneous?

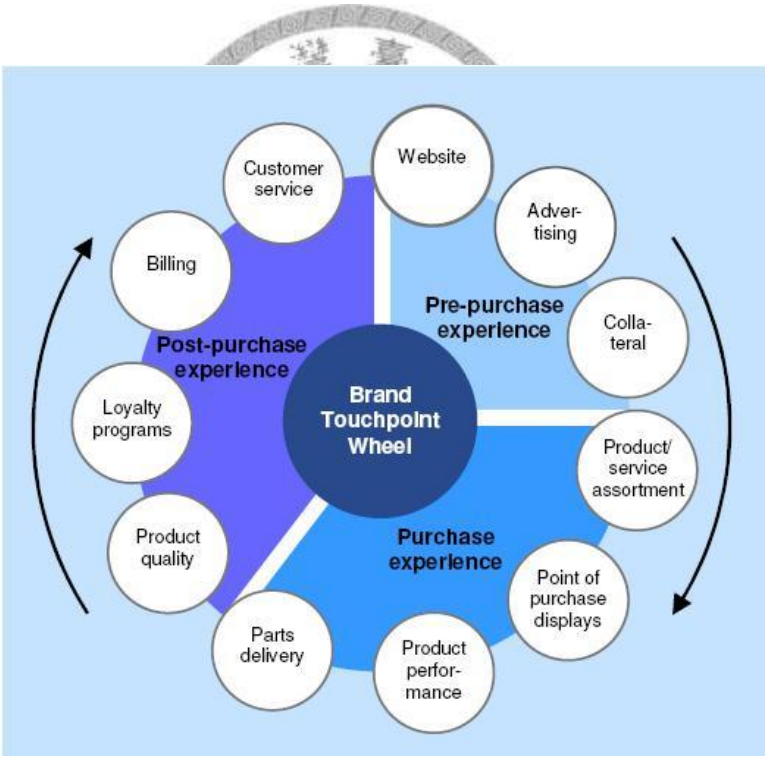
Traditionally, teaching is highly variable. Not only because of the difficulty in controlling the quality, but also because education should be heterogeneous. Customized had long been acknowledged as an important characteristic of education.

6. Service as a journey of Experience

(1). The Concept

Instead of a single point of contact, service usually consist of a much more complicated process that customers are involved and experience created. Typically, a customer journey starts long before the actual transaction takes place. A customer experience is built over an extended period of time, starting before the actual sales experience or transaction to include pre and post purchase experiences. The journey consists of numerous touch points between the customer and the organization or the brand(Voss and Zomerdijk 2007).

Figure 7 Experience View of Service: Brand Touch point Wheel (Voss and Zomerdijk 2007).



(2). Education as a journey

Education is not only for the exchange of knowledge, for most of us, it a long

process includes many thing else including the university life, the interaction with classmates and many other activities. Taking education as a journey we can more easily understand why e-learning is difficult and why the traditional university system can not be easily replaced by the new for-profit market entrants.

III. Characteristics that Makes Educational Service Unique

1. Pure Service In Nature

Why education is a pure service? Because it is not a peripheral part of any physical product. Instead, all the physical entities, such as buildings, computers or books are there for the intangible exchange of knowledge. From the spectrum from goods to service, education locates almost at the opposite pole of goods. While many service can not be separated from goods (Gadrey 2000), it's not that vague and fuzzy to say education is not a good. The educational service is primarily "people based", "mind based" rather than "equipment based" or "body based" and involves largely intangible actions (Mazzarol 1998) Many service were developed along the advance of technology and need of manufacturing (Howells 2000), education is obviously not one of them. The nature of education makes it more suitable to be defined by the 'experiential journey' concept discuss above.

2. Difficult to Identify customers

In most service industry, it is not very difficult to identify the customers. Although, in marketing, customers can be further to be identify as user, payer, decision maker, these roles are basically clear. But, for non-profit organization,

most of time, the real customer is usually difficult to define. Although a significant amount of research has been undertaken in the area of non-profit marketing, there is a lack of agreement regarding the use of key terms such as 'customer' (Dolnicar and Lazarevski 2009, 276)

Customers for Non-profit organizations are usually classified into two groups: (1) End customers who may include "clients, patrons, patients, donors, volunteer workers, advocates, trustees, committee members, local government inspectors, the local community"; (2) Intermediary customers who are involved in the process but are not the prime customer group (for example, government agencies who refer patients to non-profit organizations). (Bruce 1995, 77) (Dolnicar and Lazarevski 2009, 276). This is also true for educational institutes (Smith and Cavusgil 1984). (Bruce 1995) preferred the term beneficiary instead of customer.

Who is the customer in higher education ? Is it the service user? is it the one who pay for the service? Is student the consumer, the product or both? These are all questions in higher education.(Green 1994) (莊英慎 and 林水順 2003) Even worse is we can not decide the goal of the service, so it is more difficult for us to identify customers. And a relevant consequence is we can not decide the measure of the quality of education. Every stakeholder in higher education (e.g., students, government, professional bodies) has a particular view of quality dependent on their specific needs. (Voss, Gruber and Szmigin 2007)

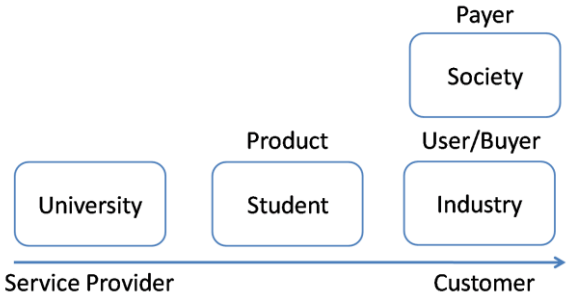
The difficulty of analyzing educational market is from the blurred identity of the customer (ASAAD, Cohen and Melewar 2008). Weaver (1976)[18] stated that there are four parties as potential customers: the government, its administrators, teachers/academics and the actual consumers (the learners, their families, employers and society as a whole) cited from). In the same line of arguments, Robinson and Long (1987)[19] distinguishes between primary (the students), secondary (e.g. paymasters) and tertiary (e.g. employers, parents) customers. And, furthermore, education may also provide benefits to society beyond the gains to the individual student. (Breneman, Pusser and Turner 2000)

Generally speaking, there are at least the following customers a higher education institute need to consider: student, government, industry, the parents and the public. (Krachenberg 1972). For some people, the mission or purpose of HEI is to provide the skilled manpower required by two activities: 1. Producing graduates to meet the human resource needs of organization in the business, industrial and service sectors 2. Pushing forward the frontiers of knowledge via research (Green 1994). The British universities have been funded on the assumption that the two functions are inextricably linked. (Green 1994) In this sense, the society is the

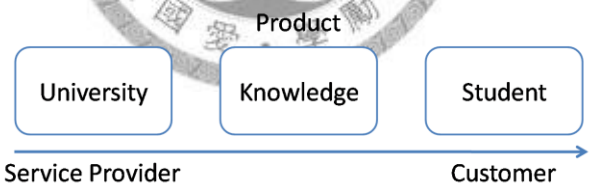
[18] Cited from (ASAAD, Cohen and Melewar 2008).

[19] Cited from (ASAAD, Cohen and Melewar 2008).

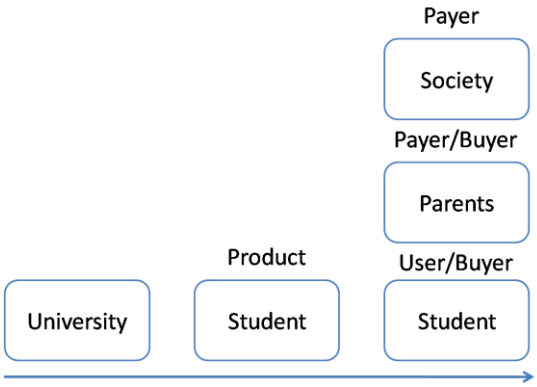
end customer, the product is the students and government is the service provider.



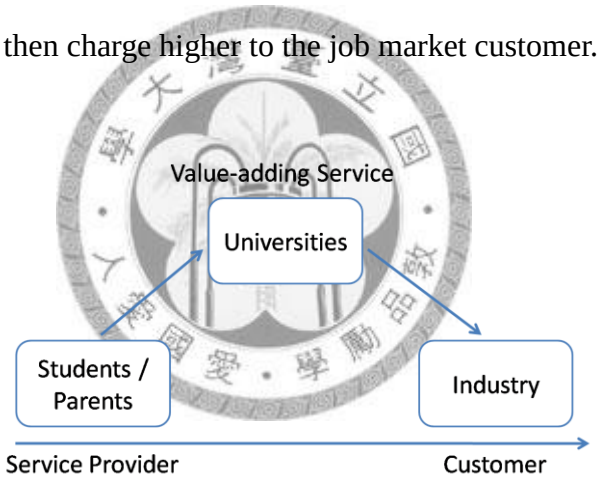
There is a different angle to see the relationship. If we think students come to school to buy knowledge and degrees then students become the customer and universities provide the service. This is the case for for-profit higher education institutes and for private schools in some countries like china where most of the fund of university is from private sources and mainly from tuition.



The above relationship can be even more complicated when the tuition is paid by parent and the government(or society) as the case of most public school.

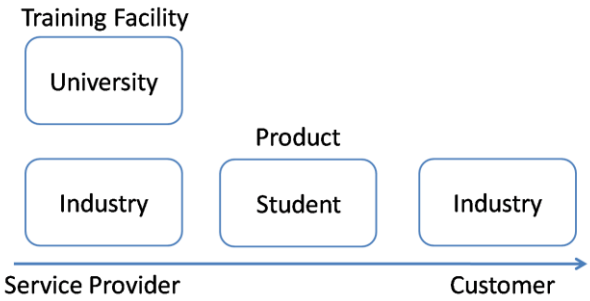


From students' perspective, they provide the service in the job market. In this sense, students can be seen as the service provider who go to school for some kind of punishment and then charge higher to the job market customer.



In some special situation, industry pays the universities to train the prospective employees directly or indirectly (by paying tax), so industry becomes payer, buyer, the user and the service provider who produce the product for themselves. University become a training facilitator only. For example, in the industry master program in Taiwan, companies pay for the tuition of the students and then students can work for the company after graduation. University become a training

facilities of the industry. This case is also applicable for the corporate universities that flourished in the beginning of the twenty-first century.



3. Difficult to Define the Goal and Measure The Result

(1). The Goal

As the complicated relationship mentioned above, the goal of higher education is very complicated. This is a unique feature for most non-profit organizations. Some people argues that education provides a broad intellectual formation and requires no justification beyond a recognition of their own intrinsic value. Therefore, with regard to education, people are valued in so far as the have minds to be developed and personalities to be formed. (Natale, Libertella and Hayward 2001, 11) As (Gallouj and Savona 2009) argued most of the problem we are facing in service industry is linked to output measurement in the service sector

(2). The Measure

The fundamental difficulty in analyzing the value added by services is the difficulty of calculating the value it self. The most important analytical problem in relation

to services is the fuzzy nature of their product (Gallouj and Savona 2009), needless to say that some classical economist even deny the value generated by service sectors. (see (Gallouj and Savona 2009)for more discussion). Measurement biases in relation to services are responsible of the great majority of the underestimations of innovation and economic performance (Gallouj and Savona 2009) And the benefits of a higher education experience may be difficult to measure (Breneman, Pusser and Turner 2000). Most of the money the college spends is poured into the black boxes of courses and departments, and nobody knows what, if anything, it is buying (Tagg 2008). Even personal satisfaction is constrained by the fact that the teacher rarely knows the significant consequences of his or her work—and others never do (Tagg 2008). In summary, the success of an educational activity cannot be easily measured because (a) it sows seeds which may not mature until many years later (b) success may not be what the educator predicted or wished it to be end. (Breneman, Pusser and Turner 2000) (Natale, Libertella and Hayward 2001, 11)

4. One-Time Experience-Based Shopping and a Lengthy Relationship

Most customers of education institutes only do the transaction once in their life-time (Smith and Cavusgil 1984, 107). And higher education is an experience-based good. Consumers do not know the quality of the education they will receive until after they have received that education (Collis 2002). Students have difficulty to judge the product before they really become a student of that school. The nature of the one-time experience-based shopping make the

after-service and the brand become more important since there is no way a student can try and judge or buy for the second time.

Education involves a lengthy and formal relationship with the client and a continuous delivery of the service. Students have a “membership” relationship with the service provider (Mazzarol 1998). This offers the service provider an opportunity to develop strong client loyalty and enhanced client service features. From service marketing perspective, the lengthy and even lifelong relationship makes education a high involvement product that is very risky for its customers.

5. The Relationship Between Service Provider and Client is Different

As we mentioned above, the relationship between the service provider and the customer is unique in educational service. It is the teacher-student relationship which stands for a special meaning in most cultures. The relationship between the business person and the client is fundamentally different between the teacher and the student (Natale, Libertella and Hayward 2001, 11).

6. High Immeasurable Cost (High Opportunity Cost)

Most customers cost much higher invisible opportunity cost when deciding the purchase transaction (Smith and Cavusgil 1984, 107). This is especially true for higher education. For students entering higher education, most of them have to forsake the opportunity of working. In many cases, the lost from not working is even more than the cost of the tuition fee.

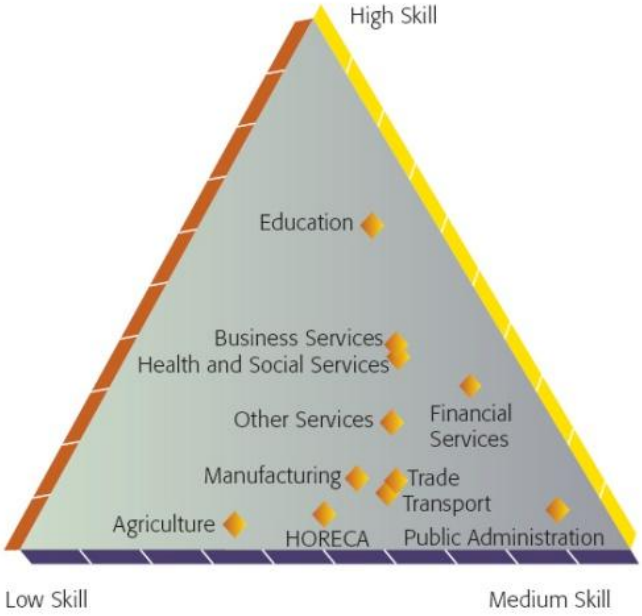
7. Low Demand Elasticity

The demand of education is inelastic (Natale, Libertella and Hayward 2001) The ability of services to be increased quickly to meet fluctuations in demand can vary. While electricity services can be increased fairly quickly to meet peak demands, hotel accommodation is more difficult to regulate. In education the demand is subject to relatively narrow fluctuations over time, yet supply is also difficult to manage, with limitations placed on availability of staff, places in courses and regulation from government.

8. High skill Employees

Another key feature of educational industry is most the employee are high skilled employees. (Miles 2008) use the percentage of different level of skill workers to classify service industry and education is the one with most high skill employees.

figure 8 Classification of Services (Miles 2008)



Education is characterized the fact that most employees are high skilled educator. But, to be more specifically, this is the traditional view of higher education institute. With a broader view of education , in a on-line course provider, a higher proportion of content is pre-recorded and more employees will be the service supporting clews than faculties of the institutes.

9. Heavily Regulated

(1). Government Control

Education is one of the heavily regulated industry. Taking pricing as an example, when discuss the marketing activities of higher education institutes in Australia, (Morony and Hill 2009) argued that the heavily regulated nature of pricing by the

federal government means that marketing laws pertaining to price are not particularly relevant to university marketers.

In Australia, higher education marketers by law can't not engage in promotional activities that are likely to mislead and deceive, therefore marketers need to be cautions over the claims they make about their institutions (Morony and Hill 2009). Promotional laws also prohibit bait advertising, misleading sales talk and harassment (Clarke and Sweeny, 2006).

In a highly regulated industry, the policy of government become one of the major force driving the change of the industry and to be successful in a industry like this also requires better understanding and even power in government.

(2). Accreditation

Accreditation is a special characteristic of educational service. There are two components of accreditation that are key to shaping the competitive environment in higher education. First, accreditation is central to the information asymmetries. Accreditation sends a signal to potential students about the threshold quality of education provided. Second, accreditation is a prerequisite for student eligibility for federally sponsored financial aid under Title IV (Breneman, Pusser and Turner 2000).

From the signaling point of view, accreditation is also an important signal. And, more specifically, being accredited might not be so important a signal then not

being accredited (Weisbrod, Ballou and Asch 2008).

The Concept of Educational Service Innovation

I. Service Innovation Studies

1. Research History

The academic society knows a great deal of organization and management of new product development but comparatively little about how applicable this is to the service sector (Stevens and Dimitriadis 2005). (Tidd and Hull 2003), (Drejer 2004). Current theory and understanding of the strategies and tactics for developing new services is inadequate (Menor and Roth 2007) (Gustafsson, Edvardsson and Sanden 2002). In response to the growth of the service sector, academic interest in the management of service companies has also grown (Oke 2007).

Research on innovation in services has only started to grow in the last few decades (Howells, Innovation and Services: New Conceptual Frameworks 2000). In 1980s, publications on developing new services only appeared occasionally, but the number f publications grew rapidly in the 1990s. (Vermeulen and Aa 2003) Knowledge pertaining to service innovation is a poorly researched and understood area (Andreasse and Streukens 2009) and Studies of service innovation are still in a relatively early development phase (Wang, et al. 2008) Studies on innovations in the service sector have received little attention from academic researchers and therefore the studies in service innovation have evolved gradually and are still largely fragmented. (Oke 2007).

Early work in services focused on the diffusion and adoption of innovative services and analyze the differentiating characteristics of services from manufacturing such as intangibility, perishability, heterogeneity and simultaneity (Oke 2007) (Gallouj and Weinstein, Innovation in services 1997). In spite of the difference, the academic studies in service still follow the track of goods (Oke 2007). Research contributions in service innovation have drawn on an extensive literature in new product development in manufacturing (Gallouj and Weinstein, Innovation in services 1997) (Oke 2007). For example, service operation management investigate key operations issues including capacity management, design, total quality management, strategy formulation and flexibility in service operations. (Oke 2007). At best, service are seen as facilitators to the 'proper' innovators – manufacturing firms; at worst, service activities are seen as passive, reactors to innovation occurring in the manufacturing sector, or indeed as 'no hopers' in innovation terms (Howells, Innovation and Services: New Conceptual Frameworks 2000) Even those services companies, particularly here technical KIBS (t-KIBS) firms, which have a more research and technically intensive profile, are still viewed as having a supporting role in the innovation system (Howells, Innovation and Services: New Conceptual Frameworks 2000).

In recent years, academic studies started to consider a new concept of service innovation that separate itself from manufacturing. Most of the previous theoretical research and models came from manufacturing. Yet, these models do not consider important aspects of the service logic. (Gustafsson, Edvardsson and

Sanden 2002) (Howells, Innovation and Services: New Conceptual Frameworks 2000) According to (Den Hertog 2000) observed, "First, it has been recognized that although many services deliver a — sometimes substantial — contribution to innovation processes, they are not merely passive recipients of others' innovations. Second, the emphasis on technological innovation has been somewhat moderated by the recognition of the importance of non-technological elements of, and approaches to, service innovation."

2. What is Innovation

As (F. Gallouj 2003) argued, although there is actually no part of Schumpeter's work specifically devoted to innovation in services - Schumpeter's models are indeed science-push models, the definition defined by Schumpeter can, however, be easily by applied to services. Many studies of service innovation also start with a brief discussion of Schumpeter's concept (see (Xu, et al. 2007, 11) for example). Some others argued that Schumpeter's concept is actually a good start point in analyzing innovation in services and can be used to strengthen the theoretical background of service innovation (Drejer 2004).

Since the beginning of economic science, economists have linked innovation with economic growth. (Rubalcaba 2007) The concept of innovation can be trace back to as early as the work by Schumpeter in 1934 (Bouwman and Fielt 2008) (Gallouj and Weinstein 1997).

Innovations in services have led to the greatest level of growth and dynamism over the past several years in terms of economic activity (De Brentani 2001).

3. Type of Innovation

(1). Schumpeter

(J. Schumpeter 1934) argued that innovation serves to create wealth through fulfillment of customer needs with five different types of innovation (Drejer 2004):

i Product Innovation - the introduction of a new good or a new quality of a good.

ii Process Innovation (new methods of production) - the introduction of a new method of production, including a new way of handling a commodity commercially

iii Supply Innovation - new sources of supply of raw material or semi-finished product)

iv Market Innovation - exploration/conquest of new markets

v Organizational Innovation - new ways to organize business

The Schumpeter's concept is basically a firm level typology which put firm as a unit of analysis (Wang, et al. 2008).

Innovation is a process designed to transform knowledge or ideas into commercial revenue streams. (K. R. Smith 2006). Rogers(1995, pp.1-20) sees innovation as a process that starts with the invention of a new element. (Gustafsson, Edvardsson and Sanden 2002)

(2). The Source of innovation

Innovation is usually pull-oriented developed due to market possibilities. It is often seen pushed by technology but it is typically not technological but social (Sundbo 2002). Innovation may be influence by the technological trajectories, but they will generally be mixed up with other considerations such as market possibilities, internal resources, or other types of trajectories such as managerial, service professional and social (Sundbo 2002).

4. What Is Service Innovation

There are few different perspectives previous studies used to define service innovation. Some studies defines service innovation as a process (in contrast to an outcome) of various activities (F. Gallouj 2003). Some focus on the result of a process such as the change of value used by the customer or simple a new offering previously unavailable to the customers (Menor and Roth 2007) (Michel, Brown and Gallan, Service-Logic Innovations: How to innovate customers not products 2008). Some others use an even broader definition. (Peng, et al. 2008) defines service innovation as a change to a service system (made up of many clients and providers interacting) that creates measurable improvement in characteristics of interest. (Oke 2007) defined service innovation as new developments in activities undertaken to deliver core service products for various reasons, e.g. to make those core service products more attractive to consumers

Service innovation consists of two inter linked issues: how to innovate and what to innovate (Andreasse and Streukens 2009). There is a need to distinguish between

innovation in services and service innovation. The first concerns the innovative change with the service activity. The latter refrs to the innovative change in those organizations. (Rubalcaba 2007)

5. Why Service innovation

The long-term survival of a business enterprise hinges upon its ability to successfully introduce new products into the marketplace (Cooper 1996). It's rare now for companies to gain a competitive advantage from simply a differentiation of goods (Peng, et al. 2008). Many researches has concluded that new service development (NSD) is a major competitive factor for the service industry. (Stevens and Dimitriadis 2005) Increasing competition and more demanding customers imply that firms not focusing on new service development risk falling behind (Matthing, Kristensson and Gustafsson 2006) As (Martin and Horne 1993, 57) found, imitation is less likely to be found in successful companies.

(Storey and Easingwood 1999) reviewed the past researches and concluded that the benefits that accrue from providing new services are: (1) enhancing the profitability of existing products; (2) attracting new customers to the firm; (3) improving the loyalty of existing customers; (4) improving the image of the company; (5) producing a platform for future new products; (6) opening a market of opportunity; and (7) changing the company image.

From the society point of view, (Rubalcaba 2007) concluded that the service innovation affects economic growth for the following three reasons: (1) As service

constitute 70% per cent of advanced economies, their innovation process is essential (2) Certain services were and are essential in the development of some technological innovations (3) Business services, especially KIS, are used as intermediate inputs in production.

II. From New Product Development to Service Innovation

1. Introduction

Service firms represent an increasingly important business sector, yet the new product development literature is inclined toward production firms. Production-oriented theories, while often applicable, are not entirely appropriate (Olsen and Olsen, Market scanning for new service development 2006). The nature of service is not the same as product, so is the process of innovation.

The research in new service development, however, is still comparatively much less than new product development (Stevens and Dimitriadis 2005) (Tidd and Hull 2003), (Drejer 2004). We should, therefore, leverage the models and theories well-developed in product process and to apply, when appropriate, to new service develop process. In addition, the difference between service and goods are blurred, therefore the earliest researches in the field of NSD was actually based on the well-documented new product development (NPD) frameworks and findings (Stevens and Dimitriadis 2005) (Drejer 2004) (Wang, et al. 2008, 912). The validity of NPD models for services, however, remains to be demonstrated.

It is still an ongoing debate on whether service innovation can be analyzed by similar ideas in manufacturing (Drejer 2004). Some studies agree on the similarity and others don't.

2. The difference of New Service Development and New Product Development

(1). Previous Studies

The difference of service and product innovation emanates from the difference of service and goods. According to the discussion in (Bitner and Brown 2006), there are four important points that distinguish service sector Innovation from product innovation: first, services are increasingly knowledge-based and becoming the driving force of business growth; second, service innovation comes less from traditional research and development and more from acquiring knowledge from outside sources and from collaboration; third, service innovation depends on highly skilled and educated employees; fourth, entrepreneurship is a key driver of service innovation.

(Berry, et al. 2006) thinks Service innovation differs from product innovation in few ways. First, for labor-intensive, interactive services, the actual providers — the service delivery staff — are part of the customer experience and thus part of the innovation. Second, services requiring the physical presence of the customer necessitate "local" decentralized production capacity. Third, service innovators usually do not have a tangible product to carry a brand name.

According to (Stevens and Dimitriadis 2005), there are three fundamental differences that might invalidate the NPD models applied to services. First, due to inseparability, there is simultaneous innovation in the product and in the procedure. Second, there is no separation between product innovation and organizational innovation. Third, there is no distinction between the creation of the offer and the activity of production and/or commercialization. These differences have led to the NSD process being considered as different from the NPD process.

According to (Nijssen, et al. 2006), the differences pertain mainly to the specific characteristics of services i.e., their intangibility, co-production with customers, simultaneity, heterogeneity and perishability.

(2). Others

i Customer participation

The highly active role of the customer in the service development process has significant implications for the process of innovation. Being able to be closed to their customers, service firms can have chances to see and feel customers' problems and needs (Olsen and Olsen 2006). Of course, sometimes customers' voice might ironically block our vision to a more strategic important future (Christensen and Bower 1996).

ii Whole Organization Participation

For the intangible elements, however, the companies generally did not have

dedicated design departments (Voss and Zomerdijk 2007). One of the reason is the R&D of service must happen with the interaction of customers not in the laboratory. Another reason is the service is usually provided through people therefore it usually involves all font-line worker so the R&D can not be the responsibility of only one department.

iii Fuzzy Nature

The analytically ‘fuzzy' nature of their output, make it particularly difficult to measure them by the traditional economic methods and to detect improvement or change (Gallouj and Weinstein 1997).

3. The Highly Interdependence Between Product and Service Development

Service innovation and product innovation are highly interdependent. Service innovation requires innovation in business models, while product innovation is directly related to service innovation, and process innovation leads to innovations in business models. (Bouwman and Fielt 2008) Service innovation can not be modeled after established manufacturing frameworks. (Bitner and Brown 2006). (Michel, Brown and Gallan, Service-Logic Innovations: How to innovate customers not products 2008) argues that service innovation should be a customer-oriented term and demands no artificial product-service dichotomies.

Nowadays, more integrative perspectives of service development have sought to stress that service innovations include both technological and non-technological

innovations, such as organizational and relational change. And the integrative perspective also have sought to stress that human and organizational capabilities are also important in many service innovations (Howells and Tether 2004)

4. The Difficulty of New Service Development

The failure rate of NSD processes is high, due to the lack of an efficient development process and the lack of customer orientation and input (Lee and Chen 2009) New service development (NSD) is risky because the new service failure rate is almost 50 percent (Alam 2006). It is therefore important to discuss the key success factors of service innovation

Many variables that might influence the adoption process has been discussed in academic researches such as (Frambach, et al. 1998), (E. Rogers 1995) and (Greenhalgh, et al. 2004). (E. Rogers 1995) suggests individuals will adopt new technologies or innovations at differing rates based on a number of social and psychological characteristics. And these variable won't be able to explain the rate of adoption alone. As the example of QWERTY keyboard discussed by (E. Rogers 1995), even if the advantage of a new product is obvious, it might still be very difficult for the whole society to accept it.

III. A Model of Key Factors of Service Adoption and Diffusion

1. What is Innovation Adoption and Diffusion

Getting a new idea adopted is difficult. A common problem for many individuals

and organizations is how to speed up the rate of diffusion of an innovation (E. Rogers 1995, 5). According to (E. Rogers 1995, 5-6), diffusion is the process by which an innovation is communicated though certain channels over time among the members of a social system. Diffusion is a special type of communication in which the message is about a new idea. From another point of view, (E. Rogers 1995, 6) also defines diffusion as "a kind of social change, defined as the process by which alteration occurs in the structure and function of a social system."

There are basically two types of diffusion models are distinguished: first are models that aim to gain understanding of diffusion processes as a whole. These models are analytical representations; A second class of models has the objective to gain insight in the determinants of the individual adoption (Frambach, et al. 1998).

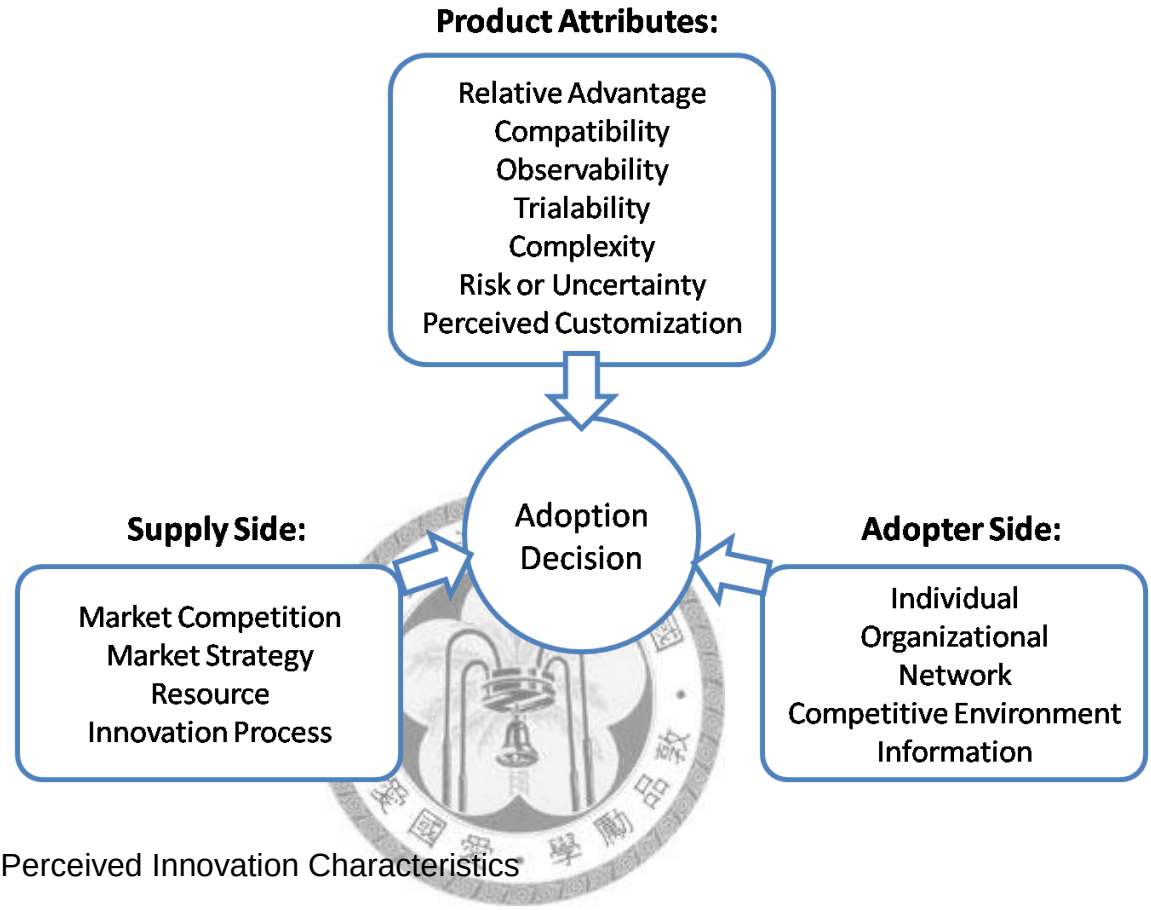
The foundation of service adoption models are consumer behavior theories that can be used to predict when customers are willing to accept a new service (Michel, Brown and Gallan 2008). The early examples of academic studies include (Arndt 1967) and (E. M. Rogers 1976). The origin of the research on the diffusion of innovation can be traced from anthropology and sociology studies in the beginning of 20th century (E. M. Rogers 1976). As early as 1960s, there has been considerable interest in diffusion research on the part of consumer researchers and a certain degree of integration of diffusion frameworks and research findings into the literature on consumer behavior (E. M. Rogers 1976).

2. The New Model

Many previous studies(including (Greenhalgh, et al. 2004),(E. Rogers 1995), (Frambach, et al. 1998),(Cooper and Kleinschmidt 1986), (Cooper, Overhauling the New Product Process 1996), (van Riel, Lemmink and Ouwersloot 2004), (Berry, et al. 2006), (Martin and Horne 1993)) proposed different key successful factors, in this study, we summarize all the key successful factors related to the adoption of service innovation.

In this study, the key successful factor of service adoption and service innovation are mixed up. Although, these two directions of studies focus on different perspective, they are almost overlapped to each other. After all, service innovation can not be successful without users adopt it and service adoption can not be successful when all the firms provide the service fails. Therefore, in this study, we propose a model of service adoption but actually it is also a model for successful service innovation.

Figure 9 Variables Influencing Adoption and Diffusion



3. Perceived Innovation Characteristics

(1). Relative Advantage

Relative advantage is the degree to which an innovation is perceived as being better than the idea it supersedes. If potential users see no relative advantage in the innovation, they generally will not consider it further. It is the sine qua non for adoption (Greenhalgh, et al. 2004) and is one of the key successful factors proposed by other studies (E. Rogers 1995)(Cooper and Kleinschmidt 1986) Perceived relative advantage of an innovation, is one of the best predictors of the rate of adoption of innovations. This is especially true in industry market where

efficiency and effectiveness are more emphasized (Frambach, et al. 1998).

(2). Compatibility

Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters is positively related to adoption (Frambach, et al. 1998) (E. Rogers 1995). Innovations that are compatible with the intended adopters' values, norms, and perceived needs are more readily adopted. (Greenhalgh, et al. 2004)

(3). Observability

Observability is the degree to which the result can be seen by the adopter and others. Observability. If the benefits of an innovation are visible to intended adopters, it will be adopted more easily. (Greenhalgh, et al. 2004) (Frambach, et al. 1998) (E. Rogers 1995)

(4). Trialability.

Trialability is the degree to which an innovation may be experimented before the actual adoption. Innovations with which the intended users can experiment on a limited basis are adopted and assimilated more easily. (Greenhalgh, et al. 2004) (Frambach, et al. 1998) (E. Rogers 1995)

(5). Complexity.

Complexity is the degree to which an innovation is perceived as relatively difficult

to understand and use. The less the complexity, the easier it can be adopted. Perceived complexity can be reduced by practical experience and demonstration (Greenhalgh, et al. 2004) (Frambach, et al. 1998) (E. Rogers 1995).

(6). Risk or Uncertainty

If the innovation carries a high degree of uncertainty of outcome that the individual perceives as personally risky, it is less likely to be adopted (Greenhalgh, et al. 2004) (Frambach, et al. 1998).

(7). The perceived customization (reinvention)

Customization is the degree to which the supplier has succeeded in developing an innovation that is unique and satisfies specific (latent) needs of potential adopters. (Frambach, et al. 1998). And If potential adopters can adapt, refine, or otherwise modify the innovation to suit their own needs, it will be adopted more easily. (Greenhalgh, et al. 2004)

4. Adopter Characteristics

(1). Individual

Every individual is different. Personality and value difference makes the difference.

(2). Organizational

i Size of the adopter

Large firms to usually adopt an innovation before small firms, in particular if there are economies of scale in the use of the innovation. (Frambach, et al. 1998).

ii Receptiveness

Receptiveness of an organization toward new ideas also encourages innovation.

iii Age of the decision makers

The age of the decision maker of the organization.

iv Control and centralization

A high degree of centralization may obstruct the opportunity for new products to be implemented in an organization. (Frambach, et al. 1998).

(3). Network Participation

Interaction between members of a social system

The participation of organization members in informal networks facilitates the spread of information about an innovation, which may positively influence the probability of an organization adopting the innovation. (Frambach, et al. 1998).

(4). Competitive Environment

The degree of competitiveness and intensity of innovative activities in an industry, the more likely organizations in that industry are to adopt an innovation (Frambach, et al. 1998).

(5). Information

The extent to which potential adopters of an innovation have processed information on the innovation can be expected to influence the probability of adoption. This is highly dependent on the degree to which suppliers have been involved in providing information on the innovation (Frambach, et al. 1998).

5. Supplier Variables

(1). Market and Competition

i Market and infrastructure perspective

For example the physical distribution of innovation. (Frambach, et al. 1998).

ii Competitively in supply side (Frambach, et al. 1998).

The more competitive of the supply, the more money is spent on promotion, the quicker customers are accepting the product.

iii Market Synergy

Service innovation will be difficult if there is not market synergy for the service provider. For example, when a new shopping mall is introduced to a new market, more resources will be put into the plan if the service provider either control the

real estate near by or is the manufacture of many products of it[20].

(2). Market strategies and marketing activities

The marketing strategy pursued by the supplier of an innovation can be hypothesized to influence the probability of adoption. (Frambach, et al. 1998). The increase emphasis on marketing can put pressure on innovation and marketing strategy can reduce the perceived risk of the new product. The probability of organizations adopting an innovation will increase with the suppliers being more active in marketing the innovation and communicating its properties more explicitly (Frambach, et al. 1998). An understanding of users' needs, wants, and preferences and a strong market orientation is the second key factor (Cooper and Kleinschmidt 1986), Furthermore, innovation can be successful is the job of selling, promotion and distribution are doing well. Therefore, (Cooper and Kleinschmidt 1986) particularly emphasize on a strong launch effort of the company.

(3). Resource for the new service

The more resource the service provider have, the better chance the innovation will be successful(Cooper 1996). Resource is a broad term, it can include financial

[20] For example, see 德電子零售巨擘與鴻海攜手進軍中國, 2010/1/4, UDN, http://udn.com/NEWS/STOCK/BREAKINGNEWS10/5346218.shtml

strength, strategic ability or other business network including supply chain or government. Take the battle of Blu-ray and HD-DVD as an example, it is the resource of the company that finally settle down the competition. Customers have not yet chance to decide whether they accept Blu-ray or HD-DVD. Also, a innovation can be successful easier if the provider has technological strength or synergy of the service it is going to provide (Cooper and Kleinschmidt 1986)

(4). Innovation Development Process and Organization

Innovation development activities, such as the extent to which the supplier has made a substantial effort in meeting customer needs, can have a major influence on the success of the new product (Frambach, et al. 1998). A formalized process of innovation is crucial (Nijssen, et al. 2006). According to (Cooper, Overhauling the New Product Process 1996), a high quality new product process is one of the key successful factors for new product development. So far, a majority of studies have focused on the identification of external factors (van Riel, Lemmink and Ouwersloot 2004)

i Business Strategy and Organizational Factors

The more support and involvement of general managers the better chance an innovation can be effective (Frambach, et al. 1998).

ii R&D and Production Factors

R&D and production factors can determine the adoption of an innovation. The

factors include the superiority or uniqueness of the innovation, the level of experience and synergy in R&D and production, the degree of user benefit or economic advantage of the innovation, the role of the product champion, and patent protection (Frambach, et al. 1998).

iii Marketing and Management

Marketing factors include experience and efficiency in marketing and interaction with potential customers.

iv Top Managers' Commitment

(Nijssen, et al. 2006) and (Cooper and Kleinschmidt 1986) also emphasized on the top managers' committeemen to the new product.

v Market and environmental factors

This involves the degree of competition in the market and the market size and growth rate.

vi Back Office

(Voss and Zomerdijk 2007) argued that in order to deliver great customer experiences the whole service supply chain should be focused on the customer experience, not just the front stage parts. In education, it means professors should face not only students but also other customers for example the industry. Why the content they teach can not be evaluated by the industry? If the content what a

school teach can be evaluate by the job market more directly , the quality of the product, say the student, can be better accepted by the job market.

A Comprehensive Service Innovation Framework

I. Why a New Framework is Needed

The appropriate classification is the first step of analyzing a phenomenon. And in the development of service innovation related research, many of them start with the taxonomy of service innovations.

In this study, we, however, found that previous studies are not enough for us to analyze service innovation especially educational service for two reasons.

First, most previous studies are simple but not comprehensive that might limit our understanding. Many previous studies classify innovation by different dimensions and usually limited to only two to three different factors. While a simplified model might be useful in communication, it is difficult to fit many scenarios into the models. In this study, we analyze previous models, and propose a comprehensive model that incorporate different dimensions discussed in previous studies. We believe, a comprehensive model, although more complicated, can help us to more clearly indentify the type of the innovation of a certain activity and service as a start point for further discussion.

Second, most previous studies try to classify into different categories and make it simple while we think its more appropriate to allow multiple attribute is more

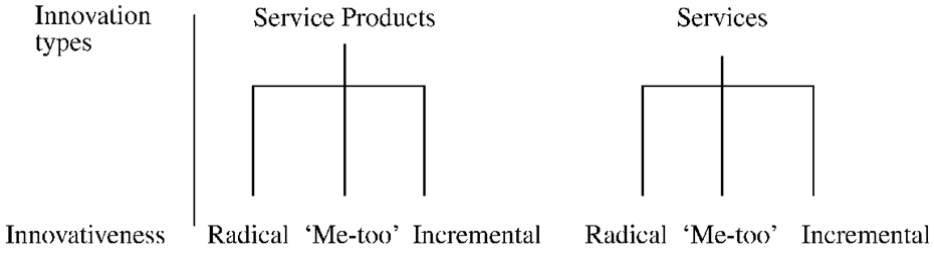
meaningful and useful. In our framework, we think an innovation can have more than one attribute. For example, e-learning is an innovation in delivery, in core benefit, in innovation system, in supply chain , in market , in organizational features etc. Putting a innovation into only one of the quadroon, as most studies do, might be too simply to make the analysis useful.

II. The Model

1. Dimensions that are investigated in the previous studies.

(Oke 2007) classify service innovation according to whether it's a core benefit innovation(service product innovation in his own term) or a process innovation (service innovation in his own term) and how innovative it is.

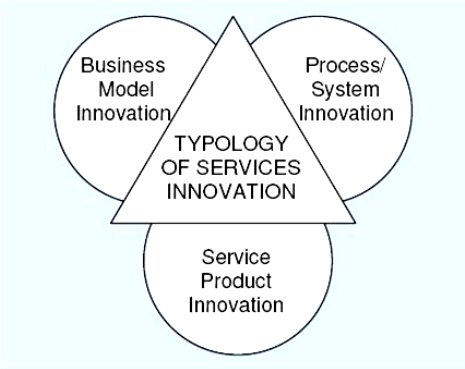
Figure 10 Innovation Typology by (Oke 2007)



(Wang, et al. 2008) suggested another classification: concept innovation and delivery innovation. (Gallouj and Weinstein 1997) defines six kind of service innovation: radical innovation denotes the creation of a totally new product; improvement innovation consists simply of improving certain characteristics;

incremental innovation denotes the innovation where the general structure of the system remains the same, but the system is changed marginally through the addition of new elements to and/or through the substitution of elements; ad hoc innovation can be defined in general terms as the interactive (social) construction of a solution to a particular problem posed by a given client; recombinative innovation (or architectural innovation) exploits the possibilities opened up by new combinations of various final and technical characteristics, derived from an established stock of knowledge, and a given technological base or existing within a defined technological trajectory; formalization innovation is the change of the 'visibility' and the degree of standardization of the various characteristics. (Voss and Zomerdijk 2007) analyzed the service innovation with a three dimension model: business model, process model, service product.

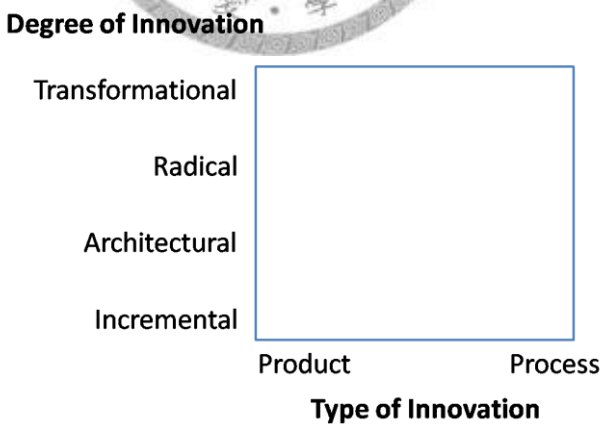
Figure 11 Typology of Service Innovation (Voss and Zomerdijk 2007)



(Tidd, Besssant and Pavitt 2001) proposed a two dimension model that consider the type of innovation and degree of innovation. The first dimension is degree of

innovation. Innovation can be positioned on a continuum running from "small-step" continuous innovations to transformational innovations. Between these two extremes are architectural innovations which refers to novel reconfigurations of existing system components and radical innovations which redefine the way we think of, and use a product or service. The second dimension is the type of innovation. The continuum relates to whether the change impacts on the things that the organization provides for its customers or the way in which these things are created and delivered. The two extremes of this spectrum are traditionally called "product" and "process", although the differentiation is not always clear-cut. In between these two extremes are innovations in the product-service mix provided by the organization to its customers.

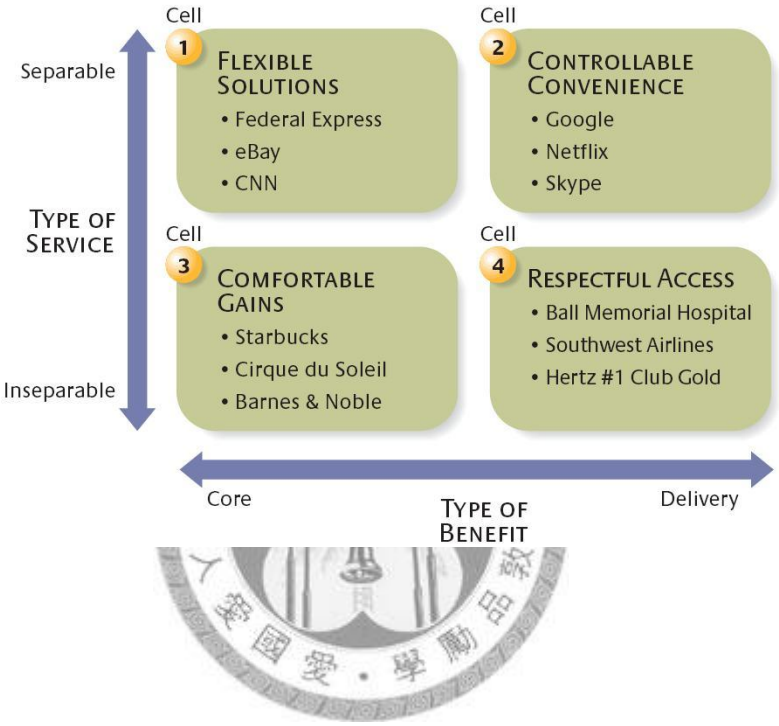
Figure 12 Two Dimensional Model of Innovation (Tidd, Besssant and Pavitt 2001)



(Berry, et al. 2006) uses another two dimensions to define new market strategies: offering new benefit, new way to deliver benefit and change the degree of

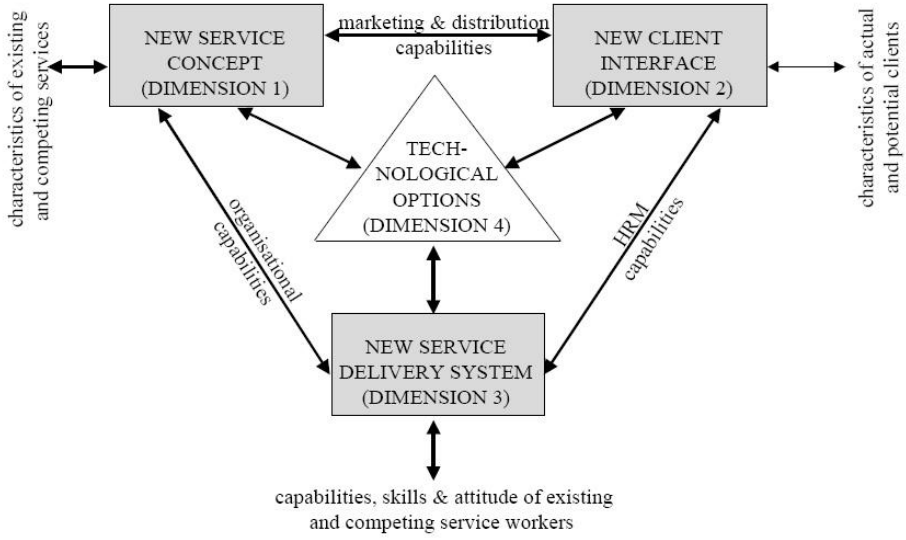
reparability. Using these two dimensions he proposed a 2x2 model that separate innovations into 4 different types.

Figure 13 Patterns of Innovation (Berry, et al. 2006)



(Den Hertog 2000) proposed a four-dimension model that can be use to analyze service innovation. The four dimensions are new service concept, new client interface, new service delivery system and technological options. And in his model, he found that these four dimensions are not standing alone. (Den Hertog 2000) further proposed organizational, HRM and marketing capabilities as linkages of these dimension.

Figure 14 Four-dimension model (Den Hertog 2000)



(Michel, Brown and Gallan 2008) emphasize on the role of service and claimed that service innovation is more about the customer than the product. After examining 26 cases they proposed a two-dimension model that consider the change in firm's value creation and the change of customers' role.

Figure 15 Service-Logic Innovation (Michel, Brown and Gallan 2008)

SERVICE-LOGIC INNOVATIONS

		Change of Customer Role		
		User	**Payer**	**Buyer**
Change in Firm's Value Creation	**Smart Offerings**	Cell 1	Cell 2	Cell 3
	Value Integration	Cell 4	Cell 5	Cell 6
	Value Constellation	Cell 7	Cell 8	Cell 9

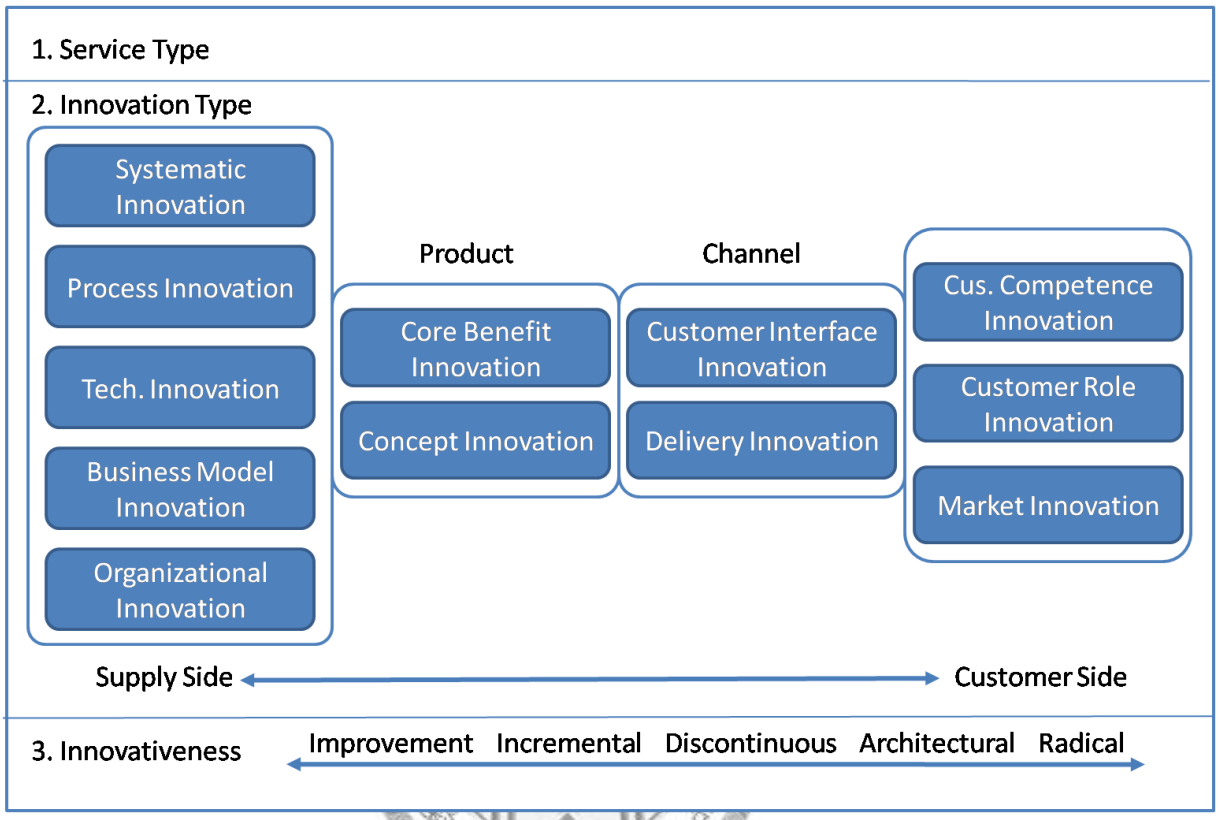
Putting more focus on the value perceived by customer and the experience of service, in 2009, (K. Chen 2010) proposed another two dimension model to classify the service innovations.

Figure 16 Value and Service Change Matrix (K. Chen 2010)

Service Provider Change Scope	Customer Experience/Value: Reinforced	Customer Experience/Value: Overturned
Changed in Service Operation Level	Incremental Innovation (Enhancement)	Modular Innovation? (Extension)
Changed in Service Concept Level	Architectural Innovation (Recombination)	Radical Innovation (Disruption)

2. The Model

Figure 17 A Comprehensive Service Innovation Model



(1). The 3-Dimension Framework and The Service Type

Most previous studies, when the taxonomy is discussed, discuss the model from at most two of the dimensions: the type of innovation and the innovativeness(see (Fagerberg 2005, 7) as an example and more discussions above). In the model proposed by (Berry, et al. 2006), there are still two dimensions but the characteristic of the service become one of them. In this study, different service types should also be included into the analysis, so we propose a three dimension model that consider service type, innovation type and innovativeness all together.

(2). Service Type

Service taxonomy has long been a research focus in service management literature. Different service type, defined by the degree of characteristics, describe the service that the innovation is about. Different service types usually associated with different service innovations.

(3). Innovation Type

As discussed before, scholars divide innovation according to many different factors. Some focus more on customer side, some on supply and process, while others discuss the value-chain of the service. In this study, we believe it's essential to put the whole system into consideration, we thus propose a value-chain like taxonomy of types and find it is easier to identify the position of innovation from this perspective.

(4). Innovativeness

Many previous studies put innovativeness as a dimension of service innovation. And, many agree that the dimension of innovativeness can be positioned on a continuum running from "small-step" continuous innovations (which are often associated with process innovations) through to "transformational" innovations (which are so far-reaching that they change the very functioning of society)(for example, see (Tidd, Besssant and Pavitt 2001)

III. Type of Service

1. A Remark

There are many different way to classify service, here we summarize few of the most important models. But, before we dump into the models one thing we should remark. Service should be classified according to the core benefit not by the name of it. In marketing, product can be classified as the core product, the physical product and the extension of the product. For example, when a customer buys a BMW coupe, what he gets is the car but what he really wants might be an expensive toy to show off, speeding on highway or a sense of safety. For different people, the core product/benefit might be different, and the discussion of classification will be more reasonable if we classify products down to the level of core benefit instead of the superficial level of names.

2. Characteristic Perspective

First way to separate services is to use the characteristics of services. Although, service is described as intangible, inseparable, perishable and so on. They are not exactly the same.

(1). The degree of Inseparability

For example, the information technology changes the level of inseparability of service provider and the customer. Health care now can advise patient via e-mail and can monitor patients' health through telemedicine. (Berry, et al. 2006) Education can now create interaction between teacher and students while they are

thousands of miles away. These two kind of service innovation, can be classified as customer interface and delivery innovation, become significant to change our life because the industries they work with are characterized by the high degree of inseparability. This is an example how the type of service might help us to understand the innovation more.

(2). The possibility of recurrent.

For education service, like most other service, the possibility of serving recurrent customer is associated with the objectives of the service and service innovation. For example, for most ordinary higher education, education is a one-time shopping as discussed above. When students have no chance to judge the result before a lot of costs are paid, the information is very asymmetric. Signaling is particularly important in a service like this. That is why the ranking is important for schools. Schools also have to focus more on branding than the products. Sometimes, an open house event is useful in promotion the school. Finally, some school also maintain a high level of tuition fee as a signal of good quality.

On the other hand, most non-degree based on-line courses don't require student to invest a huge cost beforehand and recurrent students are an important part of the revenue. For educational service like this, the quality and result of the service become more important and therefore service innovation in providing a better product become more important in this case.

3. Types of Transformation (Howells and Tether 2004)

According to (Howells and Tether 2004, 40), service can be classified into four types:

(1). Service engaged in the physical transformation

Services engaged in the physical transformation, particularly of goods - i.e., services that act on goods. A good example is road transport, handling and storage (including logistics).

(2). Services engaged in the transformation of information

Services engaged in the transformation of information - i.e., services that are engaged in information processing. Data processing services are a good example here.

(3). Services engaged in the provision of knowledge based services

Services engaged in the provision of knowledge based services - i.e., services for which knowledge based 'services' are their principal product. Examples include design and related services.

(4). Services which are aimed at the transformation of people

Services which are aimed at the transformation of people - i.e., services which act on people, providing physical and/or mental/emotional changes. A good example is care for the elderly.

4. Characteristics Model (Gallouj and Weinstein 1997)

(1). The fundamentals

Based on the concept proposed by (Saviotti and Metcalfe 1984), (Gallouj and Weinstein 1997) use characteristics to describe services. (Gallouj and Weinstein 1997) argued that the provision of any type of 'product' can be described in terms of a set of characteristics that reflect, on the one hand, the internal structure of the product in question and, on the other, its external properties.

In (Saviotti and Metcalfe 1984), characteristics are divided into three types:

i The final characteristics

The final characteristics that can be seen by users. For example, quality, comfortable or enjoyable. The final characteristics of services are further divided by (Gallouj and Weinstein 1997) into main characteristics, complementary characteristics and externalities.

ii The internal characteristics(or technical characteristics)

The internal (technical) characteristics that are used to create the final characteristics. In the case of manufacturing, it’s easier defined. For example, the types of engine, suspension of cars are the internal characteristics.

iii The process characteristics

The process characteristics include all technologies that are used in design and manufacturing including all technology used.

(2). The Model of (Gallouj and Weinstein 1997)

i Final Characteristics

Similar to (Saviotti and Metcalfe 1984), (Gallouj and Weinstein 1997) use the final characteristics to describe what users perceived.

ii Technical Characteristics

(Gallouj and Weinstein 1997) also adopt the technical characteristics. In service, it includes both (1) tangible characteristics and (2) intangible characteristics.

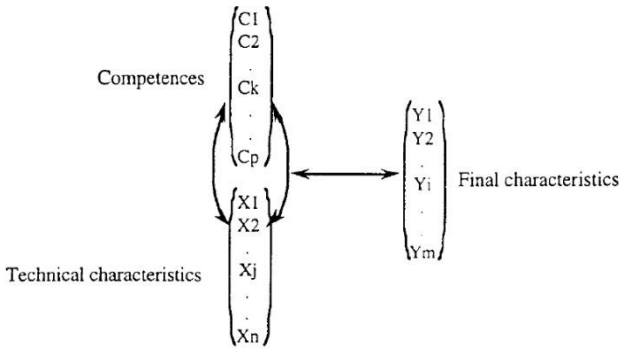
(Gallouj and Weinstein 1997) argued that in service, process is part of the product, so in their model, process characteristics is no longer the characteristics that used define service. In stead, the process is the product. Therefore, the process characteristics is no long part of the model. As (Gallouj and Weinstein 1997) mentioned, it is impossible to separate technical characteristics from process characteristics.

iii Competences Characteristics

In (Gallouj and Weinstein 1997), the utilization of (tangible or intangible)technical characteristics that are themselves based on competences, and the direct mobilization of competences are added into the framework.

The 'vector' [C] of competences mobilized in the provision of a service relates only to individual competences or to a clearly delimited group, i.e., the team involved in providing the service in question. It does not include organizational competences, which fall within the scope of intangible technical characteristics[X].

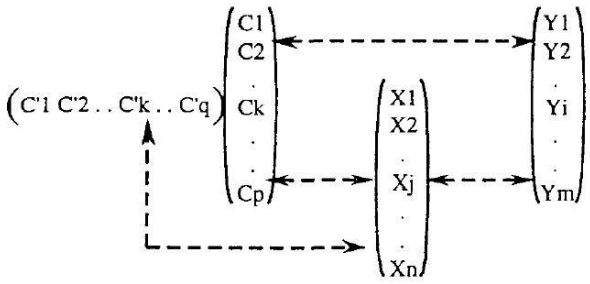
Figure 18 (Gallouj and Weinstein 1997)



iv Customer Competences Characteristics

The customer's participation in the production of a service is one of the major characteristics of service provision.

Figure 19 Customer Competences Characteristics (Gallouj and Weinstein 1997)



There are several reasons for taking account of this client and provider interface. First, it may itself be the subject of innovations, secondly, it is the 'laboratory' (the word used by (Gallouj and Weinstein 1997)) where ad hoc innovation, is initiated; finally, the quality of the client firm's competences (C' 1 C'2... C' k) is one criterion

for the success of innovations and technology transfer.

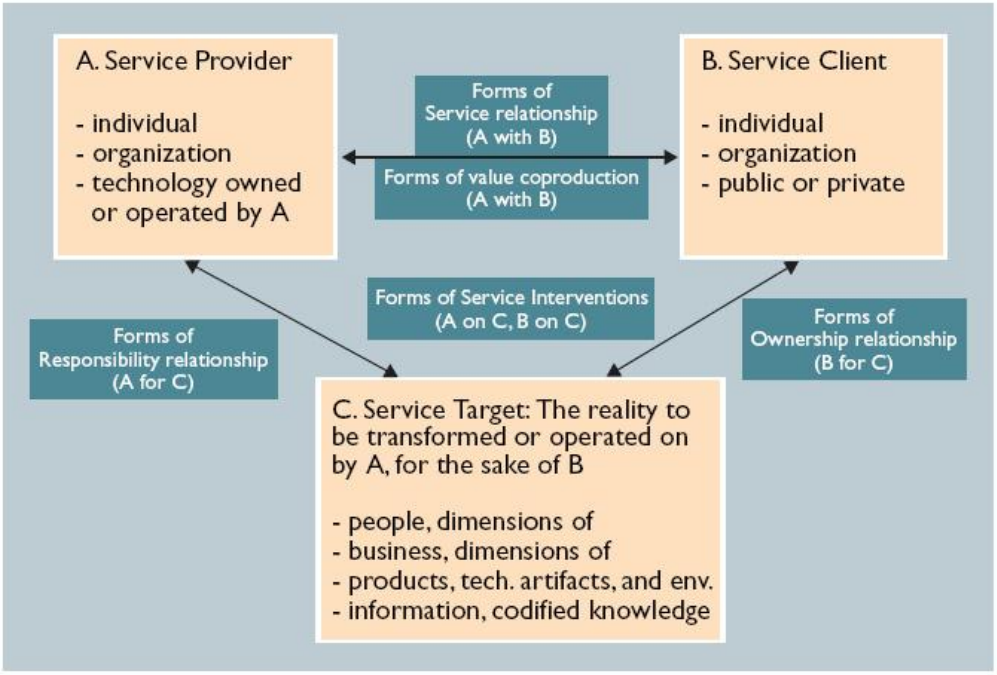
5. Service Triangle

Borrowed from (Hill, 1999)'s assistance and intervention point of view, (Gadrey 2000) proposed a new concept called 'service triangle' to define a service. He defines service as an interaction among the service provider, service receiver and possibly a certain entity owned by the service receiver. In his own words:

> *Any purchase of services by an economic agent B (whether an individual or organization) would, therefore, be the purchase from organization A of the right to use, generally for a specified period, a technical and human capacity owned or controlled by A in order to produce useful effects on agent B or on goods C owned by agent B or for which he or she is responsible.*

(Gadrey 2000) Also he classified three demand rationales: say the assistance or intervention rationale, the provision of technical capacities rationale and the live performance rationale, to elaborate his concept (Maglio, et al. 2006)

figure 20 Service Triangle (Gadrey 2000)

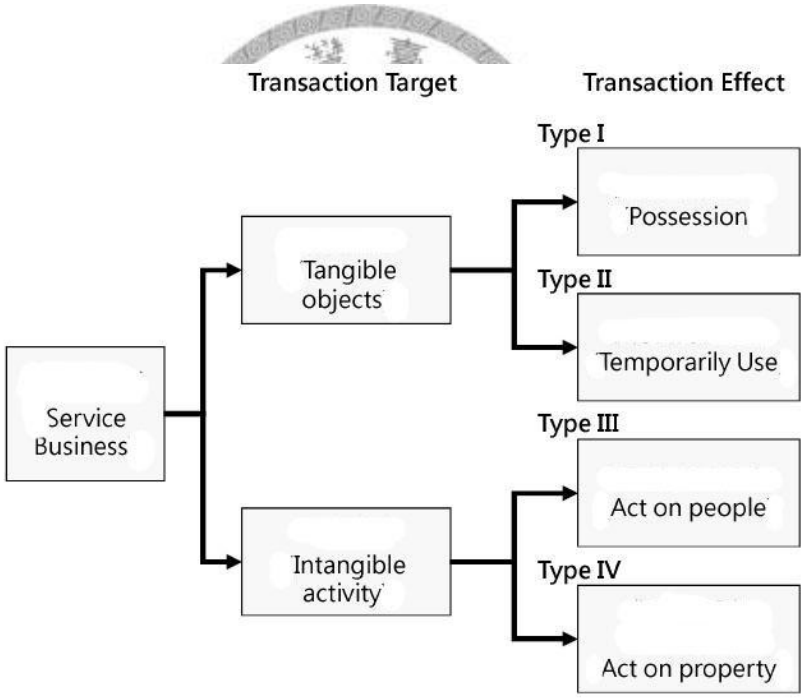


6. The transaction target and effect

Service can be classified according to the transaction target and the transaction effect. Putting service into the model proposed by (K. Chen 2010), one can easily see the intrinsic characteristic of the service and link it to possible service innovation types. For example, since education is more intangible and act on people, it is type III. And we can expect other service with the same classification share similar properties with education and therefore should be similar in service innovations. For example, medical service is also type III and therefore, after seeing the rapid development of e-learning (service innovation in delivery), one can imagine a similar service, e-doctoring to happen. And, we can also expect

e-doctoring to be difficult in the first few year like we've seen e-learning staggered. The reason might be similar. Most people thought e-learning is simply doing the same instruction via internet and the neglected the importance of people interaction and therefore they forgot to develop a new pedagogy for e-learning. So is e-doctoring. Many people might simply put doctor online, and it is, arguably, very likely to fail if we don't tailor a new interaction model between doctor and the patient.

Figure 21Transaction Target and Effect Taxonomy



IV. Supply Side (Firm-Level) Innovation

Literature on the firm-level effects of innovation addresses many considerations, including strategic marketing planning, financial returns, firm characteristics and their impacts on innovation, organizational characteristics that facilitate innovation development, and the role of strategic orientation. This broad areas often includes product development (Michel, Brown and Gallan 2008)

Although we try to separate the innovation from supply to demand in order to make the discussion more clear, we understand that service is a value co-creation process that customer usually involve in the supply side innovation. But, we think if we always put customer and supplier together, although more accurate in the concept of service innovation, will inevitably make it too complicated for anyone to use the model. In this study, a separate model is proposed. And, therefore, by using our model, it is very common to see a innovation is both supply side and customer side innovation.

1. Process Innovation

Process innovation is a new method of production and it one of the five basic types of innovation discussed in (J. Schumpeter 1934). It is the introduction of a new method of production, including a new way of handling a commodity commercially. But in some previous studies, the delivery of the new product is part of the production process. In this study, however, we define the process innovation as an internal feature of a firm only. And separate it from delivery innovation that

describe a new way to provide the product to customers. One might say, when a service is purely an interaction of the service provider and the customer, for example the barber, there is no way to separate the process of production and the delivery. It is true that when most time and effort spent by the service provider is equal to the time and effort spent with the customer, we seldom see a process innovation, but, for most others, service provider usually prepare the service before the encounter. Then, we can think a new method of preparation can been seen as a process innovation. For example, when a firm outsource the call center without change the level of the quality of the service, it is a process innovation that users might not be able to perceive the difference (so, it's not a delivery innovation).

Production and efficiency practices allow a firm to design, produce and market its products more efficiently than its competitors. (Gera and Gu 2004) That's way process innovation is important for service firms. The restructuring of production processes, which include business reengineering, downsizing, flexible work arrangements, outsourcing, greater integration among functional lines, and decentralization; (Gera and Gu 2004) In practical terms, production and efficiency practices are often associated with making production processes "lean" and more responsive to market changes. (Gera and Gu 2004).

In education industry, process innovation is everywhere. For example, now many instructors use the material, i.e. PowerPoint slides, prepared by the publisher of the textbook to teach and follow the structure of the textbook as the content of a course.

This is a new way to prepare for the teaching and thus can be taken as a process innovation.

2. Business Model Innovation

Business model innovation is defined as a new combination of resources or organizations to provide the service. It is also called the value integration by using the service-dominant terms. Process innovation focus on the effort that an organization spend on producing the service while business model innovation might change the whole organization and the interaction with customers. Southwestern airline change the way we though about airline industry by cutting the price down and provide limited service. The customers also need to change their behavior since now the book-and-wait model changes and customers need to line up in the airport for the next flight like they're going to take a bus. University of Phoenix is an example of business model innovation. It has no library and hire less than 50 full time faculties. It changes less. So, customers are paying less and gain less service they probably don't use at all. Students need to find and pay for other source of service if they need to find information for their homework or they need after-class discussion with instructors.

3. Systematic Innovation

(1). The Concept

Although traditionally more research discuss the innovation in a relatively micro level that focus on the new concept or product provided by one or few product

providers, innovation is actually rarely undertaken in isolation by a single (manufacturing) firm, innovation is usually not a decision of a single organization – it is a complicated interaction among many individuals, organizations and governments and possibly across a long period of time (Howells 2000) (Fagerberg 2005, 5) (Fischer 2001).

Using the service-dominant logic terms, it is the value constellation that describe the interplay among multiple actors and resources to co-create value. In this regard, it goes beyond the traditional, linear concept of a value chain.18 Innovations triggered by changes in a value constellation extend past a new product exchanged between one firm and its customers (Michel, Brown and Gallan 2008).

The systems of innovation approach has recently received considerable attention (Fischer 2001) (Drejer 2004). This kind of evolutionist growth models create another concept of innovation within growth by looking at the integration of economic and non-economic factors (culture, institutions and sciences) (Rubalcaba 2007)

Innovation more frequently now involves bi-lateral or multi-lateral networks of (manufacturing and service) firms working together, in turn often collaborating with HEIs or public research establishments. The long time period of innovation

may have to do with the lack of many conditions to commercialize inventions[21]. With a even more blurred boundaries among organizations, the rise of these relationships has overturned our existing understanding of the organization of innovation (Tether 2002).

Some previous studies like, (Schumpeter 1934), consider the systematic innovation as an organizational innovation (Drejer 2004) (Fagerberg 2005), since it's a change of the organization of industry. In this study, we further separate the organizational innovation within an organization (organizational innovation) and outside an organization (systematic innovation). And, the term organizational innovation will be purely about the innovation within a single organization. Also, in this study, we use the word systematic innovation, network (of organization) innovation, cooperative innovation and value-chain innovation interchangeably .

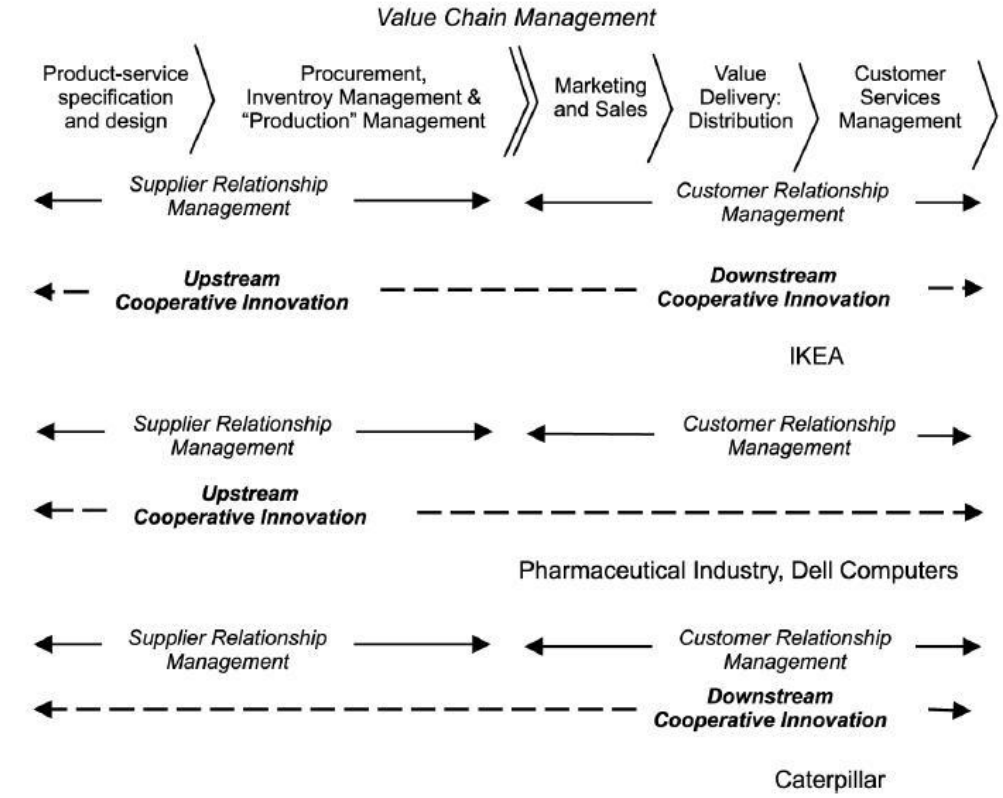
The value chain concept offers management a means by which they can evaluate both existing and new strategic opportunities to create customer and partner value (Walters and Rainbird 2007). Originally, the concept of value-chain evolves from a different perspective from the systematic view of industry. Recent development of value-chain theories, however, puts more and more players into consideration

[21] In (Fagerberg 2005), 'invention' is the creation of new technology, process or concept and 'innovation is to carry it out to practice.

and makes the value-chain analysis no difference to the systematic analysis.

There are three approaches to cooperative innovation suggested by (Walters and Rainbird 2007)

Figure 22 Exploring the scope of co-operative/partnership evaluation in value systems (Walters and Rainbird 2007).



Supply innovation was one of the basic form of innovation discussed in (J. Schumpeter 1934). Since recent development of the theories focus more on the chain-value perspective instead of supply chain, in this study the supply innovation

is incorporated into the systematic/value-chain innovation.

Furthermore, in discussing system innovation, we also discuss the system innovation with customers. In order to make the model simpler, in this study, we still put system innovation in the supply side since most of them focus more on the insertion of the supply system instead of the interaction with customer. It is sometimes confusing, of course.

(2). The Definition

Innovation network is an evolving mutually dependent system based on resource relationships (Fischer 2001). Activities within a system includes the creation, combination, exchange, transformation, absorption, and exploitation of resources. (Fischer 2001) A system of innovation may be thought of as a set of actors such as firms, other organizations and institutions that interact in the generation, diffusion and use of new and economically useful knowledge in the production process (Fischer 2001). Service systems are value-creation networks composed of people, technology, and organizations (Maglio, et al. 2006). A network may be defined as all the linkages between actors in a system (Syson and Perks 2004).

(3). The Benefits and Difficulties of Using the Systematic Approach

By using the systematic approach, we are able to indentify and integrate relevant resources from across the organization and its wider environment and find out how to match them together (Syson and Perks 2004) (Walters and Rainbird 2007). It

also allows the dynamic nature of such networks to be examined (Syson and Perks 2004).

One of the difficulty in applying and studying the systematic view (or organization of industry) is the difficulty in measuring (Drejer 2004, 558). Organizational innovation is highly firm specific, which makes it difficult to sum up to an aggregate level. (Drejer 2004, 558)

(4). Customer Side Integration

(Walters and Rainbird 2007) identified few motivations to co-operate with customers within the supply chain: 1. providing complementary knowledge and user know-how 2. providing a balance between performance and price 3. providing an insight into user behavior that may modify or refine the innovation 4. create an awareness of the innovation among other potential users.

(5). Co-operate with competitors

Cooperation with competitors rose a lot of suspicions because of the potential conflict of interest (Tether 2002). But motivations for alliances with competitors need not be (directly)anti-competitive, and can be complex (Tether 2002). (Tether 2002) further summarized few possible reasons for co-operate with competitors: first, collaborations may relate to standard setting, whereby firms agree to introduce products or services based on a jointly developed, common standard; second. Firms frequently do not compete across the whole range of their activities;

they may be competitors in some product or service markets, but not in others; third, competitors collaborate when they face common problems.

(6). Examples

The development of mobile commerce can be seen as an example of systematic innovation. To allow a shop to you a message of promotion when you're 200 yards away from the shop sounds easy but need many service to be ready before this innovation takes place. The technology of mobile internet, the readiness of GPS, the widespread of mobile phone, the technology acceptance of traditional shops, the infrastructure of telecoms and many other criteria need to be ready before it happens.

So is e-learning. E-learning is not simply put courses on-line (Huang 2010). It requires many conditions to be ready. The infrastructure, the new pedagogy, the technology readiness of students and even the regulation from government need to be ready. So, e-learning requires a systematic innovation that many actors in the industry have to change before a service innovation can take place.

4. Organizational Innovation

(1). The Concept

As (Chandler 1962) stated, structure follows strategy. From service management perspective, features of organization should change as the environment and strategy of the organization changes.

"Organizational innovation" is a broad concept that includes strategies, structural, and behavioral dimensions. It includes competitive strategy (i.e. role of innovation, costs, people etc.); structural characteristics of the organization such as hierarchy, functional lines, and organizational boundaries; work processes including the use of different production inputs, the flow of work, job design, work allocation, and use of suppliers and subcontractors; HRM practices including hiring and firing; and industrial relation practices involving the strategies and institutional structures affecting the labor -management relationship (Gera and Gu 2004). Organizational innovation can be defined as the creation of adoption of an idea of behavior new to the organization (Lam 2005).

(2). Culture and Shared Value

i Openness

Openness is considered essential for innovative projects (Fagerberg 2005). To be able to accept new things is openness and it is the very first step that an innovation is possible in an organization.

ii Entrepreneurship

Entrepreneurship to essential for innovation, base on the assumption of the human inertia of change (Fagerberg 2005). Overtime, the structure and process of an organization tends to be more and more suitable for daily operation and is impeding the innovation. (Fagerberg 2005). The change of the environment requires courage and risk-bearing attitude and these are the characteristic of

entrepreneurship. The more radical the innovation, the greater is the risk of failure. Companies that grow need to create an acceptance of failure as a legitimate outcome of the pursuit of innovative solutions, especially for failures in pursuit of radical innovations. Without an acceptance of failure, an organization will have a portfolio biased toward incremental innovations. (K. R. Smith 2006)

(3). Learning Organization

Innovation can be understood as a process of learning and knowledge creation through which new problems are defined and new knowledge is developed to solve them (Lam 2005, 124). The "absorptive capability" is essential for innovation (Fagerberg 2005).

(4). Leadership & Control

Without the ability to control and delegate, it is not possible to see innovation in an organization. As (K. R. Smith 2006) argued, the probability of success and level of impact of innovation activities also depend on the degree of top management involvement in the innovation process. The senior managers must have the abilities to delegate, develop and empower, to develop relationships and build teams, and to reconcile differences while maintaining tension(K. R. Smith 2006). Establishing a incentives-based system that encourage people to pursue innovations is also very important.

(5). Structure of Organization

(Burns and Stalker 1961, 579) classified organization into organic hand mechanistic and (Damanpour 1991) suggested that the adoption of innovation is easier when organizations have organic rather than mechanistic characteristics . But, many other studies also suggest that the most appropriate structure for an organization so the one that best fits a given operating contingency (Lam 2005). The work of Lawrence and Lorsche suggested that the mechanistic and organic structures can coexist and a "ambidextrous organization" that is capable of coping with both evolutionary and revolutionary technological changes (Lam 2005, 109).

(6). New Units of Organization are Established

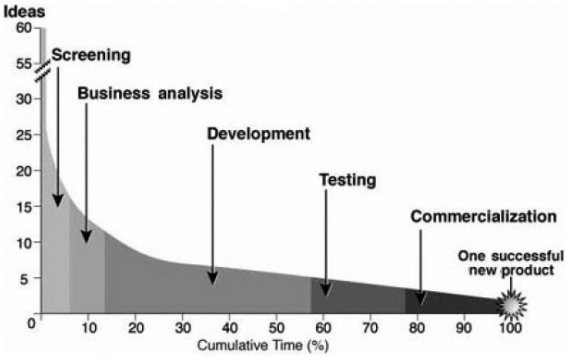
Establishing new units is a common organizational innovation to the change of the environment. We'll see a lot of examples when we discuss the organizational innovation in higher education institutes.

(7). The Establish of a Formal Innovation Process

In early academic studies of successful service development, researchers tend to believe new services happen instead of developed (Martin and Horne 1993). Empirical studies also showed similar result from service companies that most of them do not have established process for new service development (Martin and Horne 1993). Many studies in the last few decades, however, shows that to be successful in developing new offerings, the organization must be both creative and systematic. (Kotler and Andreasen 2000). The service executives are increasingly recognizing the need to regularly develop new services (Alam 2006)

Successful new services rarely emerge by mere happenstance (Scheuing and Johnson 1989)[22]. The innovation process describes the way an organization (a) generates/captures, (b) evaluates/ selects, (c) develops/shapes and (d) commercializes ideas or technologies (K. R. Smith 2006). The formalized process not only provide the basis to run a business but also become a way to capitalize the innovation (K. R. Smith 2006). A high quality new product process was the strongest common denominator among high performance businesses (Cooper 1996). An NSD process comprises those activities, tasks, and information flows required of service firms to conceptualize, develop, evaluate, and prepare for market new intangible performances of value to customers. (Menor and

[22] It is widely recognized that success is rare. In previous studies, it was about one in sixty ideas or concepts achieved success in the marketplace. (K. R. Smith 2006)



Decay curve of new product ideas.

Roth 2007)

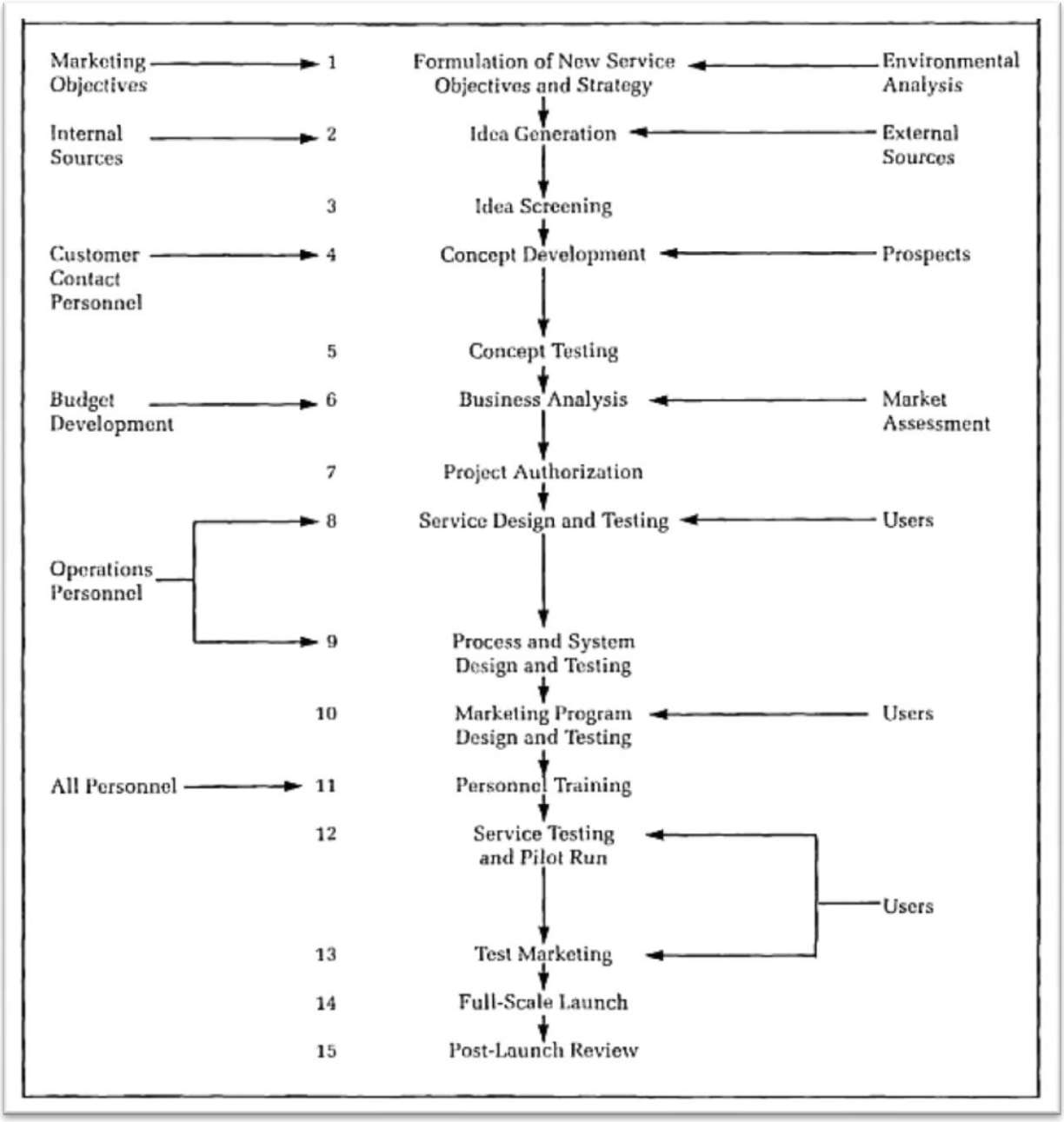
Although there have been extensive studies of the normative process, many steps of them of often omitted in real world (Cooper and Kleinschmidt 1986, 74). And as (Cooper and Kleinschmidt 1986) pointed out, it is the implementation of process that really matters. A company will not be successful by simply construct a formal process but doesn't really use it. How well they are executed, the completeness of the process and the people who operate it are key factors. Devil are in the details.

Before we move on to further discussion, we need to note one thing. The ad hoc innovation, defined as the interactive construction to a particular problem posed by a given client, is also highly acknowledged in some studies(see (Drejer 2004, 557) for discussion).

There has been many process models proposed by different authors. (Booz and Booz 1968) proposed a six step model that characterize new service development process as (1) exploration, (2) screening, (3) business analysis, (4) development, (5) testing and (6) commercialization. Some other different models are proposed by other researchers. (See (Scheuing and Johnson 1989) for more) According to (F. Gallouj 2003), the stages of innovation are: (1) The gathering of information and ideas on a problem (2) Research (3) Conception and development (4) Production of the solution (5) Marketing of the solution. (Scheuing and Johnson 1989) proposed a

15-step sequence of activities to explain the process of new service development.

Figure 23 (Scheuing and Johnson 1989) NSD Process



5. Technology Innovation

Technology innovation denotes that the change of the service is mainly because of the change of technology. It might provide similar core benefit or similar delivery system but with different technology. Again, a service can both technology innovative and delivery innovative. All the types of service innovation are not mutually exclusive. For example, correspondent school is one of the early form of distance education, when we change the delivery channel from mail to e-mail, it's technology innovation, delivery innovation and, in some circumstance, core benefit innovation and business model innovation.

V. Service Product Innovation

1. Core Benefit Innovation

Core benefit innovation is about to create a new value for customers. It is a similar idea as the core product discussed before. For example, Cirque du Soleil created a new market for live entertainment by offering a show that is neither a circus nor a dance performance but a hybrid of the two (Berry, et al. 2006). For customers in Taiwan, refund is a new concept. The internet and TV shopping companies that allow us to refund for no reason is a core benefit innovation. In educational industry, some certificate-oriented master programs that designed for students to get the master degree and certificate at the same time can be seen as a core benefit innovation in higher education.

2. Concept Innovation

Concept innovation is the change of the characteristic of existing or competing

services (Den Hertog 2000). It is not necessarily a significant change of the value of the service. Core benefit innovation is to provide different values or benefits that are known to customers, but concept innovation is to introduce a new value or benefit to customers in a market (although the value may exist in other market)

This concept needs to be new to a particular market (although the concept might already exist in other markets). This sort of innovation is highly intangible. Although not all service innovations have this conceptual element, conceptual innovations are much more likely to be found in service firms than in pure manufacturing firms (Wang, et al. 2008).

For examples, the preservation of blood of the umbilical cord is a new concept. It is a innovation created by the development of medical science. Another example is the pre-signed funeral contract that is very popular now in Taiwan. It is the introduction the concept of trust from financial industry to funeral industry. Most people told their family how they like their funeral to be, but with the new concept now people decide it before they die and a service provider can provide the funeral they want based on the contract.

VI. Channel Innovation

1. Delivery Innovation

Delivery innovation refers to the change about the production and delivery process and procedures as well as the way of communication and interaction between

service providers and clients (Wang, et al. 2008). University of Phoenix enable students to receive an establish core benefit by a new delivery system. (Berry, et al. 2006).

2. Customer Interface Innovation

Following the model of (Den Hertog 2000), in this study, we further separate the customer interface innovation from delivery innovation.

Customer Interface Innovation is the procedures as well as the way of communication and interaction between service providers and clients. Customer interface innovation are taken as part of the delivery innovation in many previous studies. In this study, we still take it as part of the delivery innovation but we think innovation in delivery can be further separated as the interface innovation and the others.

A new design of counters in banks is an example of interface innovation. And case-study classroom in school, like NTU, that change the layout of seats can be seen as an example in educational industry.

VII. Customer Side Innovation

1. Market Innovation

Market Innovation is the exploration or conquest of new markets and is one of the five basic forms of innovation discussed in (J. Schumpeter 1934).

The content of the service might not change, so many previous studies did not include the market innovation as a service innovation. However, in this study, we believe that since the service is the interaction process, it is not common that a new market can be conquered without any change of the process or the value of the service. Therefore, market innovation is included as a type of service innovation discussed in our model.

Globalization of education is an example of market innovation. Most people would think it is simply provide the same education to students in or from other countries. But, in reality, organization structure, faculties, curriculum and many other aspects have to change to serve those new comers.

2. Customer Role Innovation

(1). The Concept

There are many different roles customers are playing in the process of the service. And customer role innovation is the change of the roles of the customers.

In marketing, customers are classified as user, buyer or payer who are the beneficiary of the service, the purchasing decision maker or the one who paid the cost respectively. Of course, there are more possible roles customer can play in the process of service. For example, when a service is changed from customers walk in to home delivery, the customer no longer play the role of delivery the products. It can be classified as a change of customers' role.

(2). Examples of Customer Role Innovation

Here are few examples discussed by (Michel, Brown and Gallan 2008).

The University of Phoenix has altered users' roles dramatically. Students no longer must live in proximity to a campus but can earn a degree, at a pace they (rather than the university) define, from anywhere that offers online access (Michel, Brown and Gallan 2008).

Traditionally, moviegoers determined the movie they wanted to see at a specific time and drove to the theater. However, because multiplex cinemas with their many screens can show more than a dozen films at similar times, now movie goers can simply go without thinking and pick a movie they want when they arrive (Michel, Brown and Gallan 2008).

Netflix is a mail based DVD rental company. Customers order DVDs over the Internet, then receive the DVDs at their homes. Compare to the traditional business model of Blockbuster which requires customers to drive to a store to select, obtain, and return the DVDs by themselves. Moreover, the traditional model charges a fee per movie for a certain time, while Netflix customers subscribe to the service, pay in advance and receive a certain number of DVDs that they can rent simultaneously and keep for an undetermined amount of time. (Michel, Brown and Gallan 2008)

Wikipedia, the online encyclopedia charges nothing for access to its content that is

created and posted by users on an ongoing basis.(Michel, Brown and Gallan 2008) The website then get it funding from donation and advertisement. This is an example of the change of payer of a service.

In Switzerland, the newspaper , 20 Minuten, is distributed for free at train and bus stations and used by readers to inform themselves during their commute to work. So the content is short, there is no long stories, the size of the paper is smaller and readers no longer pay for the newspaper (Michel, Brown and Gallan 2008). This model can actually be seen in Taiwan. Now people can also receive free newspaper when they enter the subway in Taipei.

The invention of the mobile telephone provides is an example of a change in all three consumer roles. As (Michel, Brown and Gallan 2008) argued:

> *Users can move around freely and are not bound to a telephone wire, buyers purchase not only the phone but often a package that includes the phone and a service agreement, and payers often receive the phone for free if they pay for the service they use.*

3. Customer Competence Innovation

Customer competence innovation is to provide a new service by increasing customers' ability. For example, service provider can design new tools or environment that users can do the rest of the service themselves. More and more airline now provide self-help check-in kiosk so customers can complete the

check-in process and get their boarding pass themselves. The Swedish furniture giant IKEA enables consumers to pay less for furniture but also prefers that they transport their purchases and then assemble the furniture themselves. (Michel, Brown and Gallan 2008) Some farms are providing the land and knowledge so people who are living in the city can grow their own fruit or vegetable. This kind of service innovation changes not only the role of customers but also the knowledge and competence of the customers.

VIII. Innovativeness

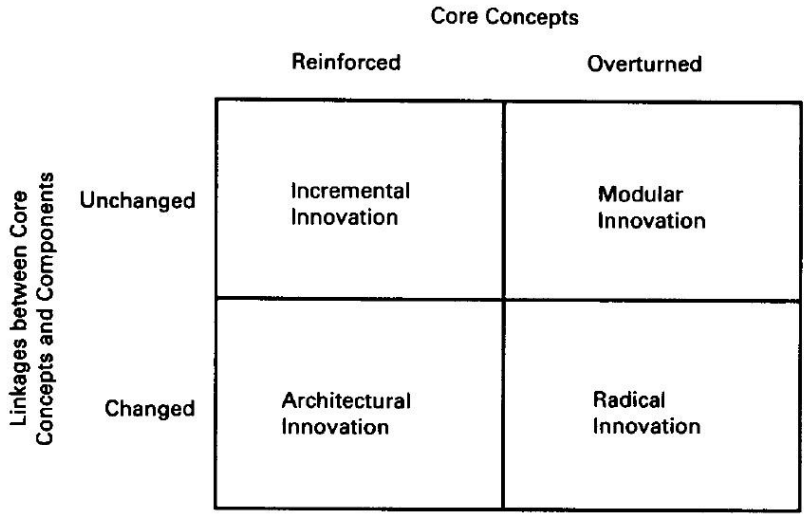
1. Improvement

According to the strictest definition, this type of innovation consists simply of improving certain characteristics, without any change to the structure of the system (Gallouj and Weinstein 1997). For example, a food delivery service can reduce the time needed from 2 hours to 1 hours. It is an improvement and all the others remain the same.

2. Incremental

Incremental innovation is a innovation that substitute or add some of the characteristics of the service (Gallouj and Weinstein 1997). From (Henderson and Clark 1990)'s Technological innovation model, it is the innovation where core concept is not overturned and all link between components are still the same.

Figure 24 Technological Innovation Model (Henderson and Clark 1990)



As (Callan 2004) argues, in reality, a substantial amount of innovation is incremental innovation. Radical innovation is a rare phenomenon in any industry, and it is best seen as examples of products and services which have changed customers' expectations. (K. R. Smith 2006) also observed that, there is a bias toward incremental innovations because they are safe. Analysis of a postal survey of UK service companies suggested that they focus innovation activities more on incremental product innovations (Oke 2007)

3. Discontinuous Innovation

Similar to the concept of Technological Innovation Model proposed by (Henderson and Clark 1990), (Olsen and Sallis 2006) classified service innovation as incremental innovation and discontinuous innovation.

Incremental innovations are based on improvements to existing technology, whereas discontinuous innovations incorporate different technology into services. As (Olsen and Sallis 2006) further defined, incremental innovation is associated with the short-term performance, while discontinuous innovation is associated with long-term viability because it provides a broader view of trends and aids in developing the necessary capabilities to capitalize on major market shifts. And, because service innovations are easily copied, a continuous innovation process is necessary (Hipp and Grupp 2005). In turn, this constant innovation process impacts on the initiation of radical innovations. (Hipp and Grupp 2005) The Marketing Science Institute has designated discontinuous innovation tied to growth as a top research priority. (Michel, Brown and Gallan 2008)

An innovation is called discontinuous if it (1) significantly changes how customers co-create value (value-in-use criterion) and (2) significantly affects market size, prices, revenues, or market shares (value-in-exchange criterion). (Michel, Brown and Gallan 2008)

According to (Michel, Brown and Gallan 2008) there are few characteristics of discontinuous innovation: discontinuous innovation changes the role of the customer; discontinuous innovation changes the firm's value creation

4. Recombinative/Architectural Innovation

Architectural innovations can be defined as a reconfigurations of existing system

components (Tidd, Besssant and Pavitt 2001) Innovation of this kind exploits the possibilities opened up by new combinations of various final and technical characteristics, derived from an established stock of knowledge, and a given technological base or existing within a defined technological trajectory. (Gallouj and Weinstein 1997) The recombinative model is located at industry level (Gallouj and Weinstein, Innovation in services 1997).

Transformational innovation that changes the industry. Like using the streaming to move machines in the industrial revolution (Tidd, Besssant and Pavitt 2001)

There are three forms of recombinative innovation. (1) Innovation based on the addition of characteristics (2) The creation of a new product by combining the characteristics of two or more existing products (3) The creation of new products by splitting up an existing product, separating out various characteristics and turning certain elements into autonomous products (Gallouj and Weinstein 1997). For example, TSMC focus on the manufacturing of Foundry which was part of the whole manufacturing process of semiconductor products. On the other hand, some companies tries to integrate different stage of value chain together to create a total solution provider.

5. Radical Innovation

The term 'radical innovation' denotes the creation of a totally new product. The

new product have no common elements of characteristics as the old one, or at least no common elements in all but final characteristics (Gallouj and Weinstein 1997).

Distance Learning

I. The Distance Learning in Higher Education Institutes

1. The Distance Learning

Distance education defined by (Wang and Liu 2003) as the information transfer process of delivering instructional resource-sharing opportunities to learners away from conventional learning institutions or sites. The interaction of learner and instructors can be conducted with the aid of mail, phone, fax, video, audio, computer, e-mail or web-based multi-media (Wang and Liu 2003), (H. Selim 2007).

The term, distance learning, has become a generic term in recent years that can be used to refer to any form of instruction or learning process that is delivered in any manner other than in the traditional brick and mortar way (Volery and Lord 2000). Also termed “distance education”, Land (2002) defines it as “the transmission of knowledge whereby the instructor and/or students participate in different places and/or at different times (Royer 2007). E-learning can be viewed as the delivery of course content via electronic media, such as Internet, Intranets, Extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM. (H. Selim 2007).

The definition of web-based learning system of IEEE Learning Technology

Standard Committee (cited in (Ngai, Poon and Chan 2007)) is “A learning technology system that uses Web-browsers as the primary means of interaction with learners, and the Internet or an intranet as the primary means of communication among its subsystems and with other systems”

Distance education has a long history. It was originally intended to cater particularly for students disadvantaged by their geographical remoteness from university campuses. (Volery and Lord 2000). One of the first example was an advertisement of teaching composition via mail found in a Swedish newspaper in 1833 (Wang and Liu 2003). Organized distance education was first chartered in Germany in 1856 (Wang and Liu 2003). From 1883 to 1891, the Chautaugua College of Liberal Art was authorized by the state of New York to grant academic degree to students complete work by correspondence (Wang and Liu 2003). The University of Wisconsin has developed the statewide FM radio network in 1947. Television was added in 1954. Extension division faculty and county extension agents used commercial media for education, presenting 13,300 radio broadcasts and over 900 television programs by 1959. (Schejbal and Wilson 2008)

The UK’s Open University and imitators in countries as different as India, Israel, and Australia have demonstrated, even without the benefit of the Internet, that technology makes it possible to deliver a good (and relatively cheap) higher education beyond a physical campus (Volery and Lord 2000).

The development of distance education has been booming over the last few decades with the rapid development of information technology (Royer 2007) (Wang and Liu 2003). In US, the number of annual enrolment in distance program is about 8 million in 1990s and 1.67 million in 1997.

Neither corporate nor university respondents believe that online learning will eventually replace traditional forms of instruction. It is a “supplement,” many said, “not a substitute.” (Brint, Paxton-Jorgenson and Vega 2003)

2. E-Learning For HEI Around the World

E-Learning has been widely accepted in higher education institutes around the world.

(1). US

Venture capitalists have been investing over $100 million every quarter into entrepreneurial internet educational content companies (Collis 2002). And information technology has been viewed as a solution to universities’ cost and quality problems (H. Selim 2007). With the advancement of technology and widespread use of internet, E-Learning has been indentified as an opportunity for developing courses in higher education institutes. (Ngai, Poon and Chan 2007) By as early as 1999, 62% of the 3600 accredited institutions of higher education offered distance learning course. (Collis 2002, 181) and more than 2000 U.S. institutions offer online courses (Eckel 2003). Venture capitalists have been

investing over $100 million every quarter into entrepreneurial internet educational content companies. Kaplan now has the second largest private law school in the United States. (Collis 2002, 181)

According to the report of International Data Corporation (2000) cited in (Ngai, Poon and Chan 2007), the number of colleges and universities in US offering e-learning 'will' double, from 1500 in 1999 to more than 3300 in 2004. Student enrollment in these courses 'will' increase 33% annually during this. The University of Wisconsin Colleges online program grew 28 percent in the 2007-8 academic year, and 30 intensive format courses that were launched all filled. (Schejbal and Wilson 2008)

(2). UK

HEFCE (Higher Education Funding Council of England) has adopted a strategy to embed e-learning in all higher education institutions, 'in a sustainable way, by 2010' and is working with the Higher Education Academy and the Joint Information Systems Committee on implementing the strategy (Keogh and Fox 2008). Now, the funding to a total of £33m was distributed to 74 English universities in 2007, as a consequence of which, the majority of UK universities have now adopted or updated their e-learning strategies (Keogh and Fox 2008).

(3). Europe

The European Union is one of a number of international bodies (including the

OECD, the Council of Europe and the World Bank) which have an interest in promoting e-learning (Keogh and Fox 2008).

(4). Hong Kong

In Hong Kong, E-Learning is being used nearly in all institutions of higher education in Hong Kong. Many institutions of higher education offer e-learning as part of their curriculum, and have some form of on-line learning using these Web-based learning systems. (Ngai, Poon and Chan 2007)

(5). Malaysia

Statistic in late 2004 shows almost 88% of the Institute of Higher Learning in Malaysia has implemented the e-Learning System. (Hamid and Anwar 2007) The e-learning in Malaysia was initiated by the government under the initiatives called Smart School and e-Learning for Life (ELFL) and a National e-Learning Consultative Committee (NeLCC) was setup to provide direction and monitor initiatives pertaining to orderly development and adoption of e-learning practices (Hamid and Anwar 2007).

(6). New Zealand

In New Zealand, the E-Learning Advisory Group to the Ministry of Education recommended that a tertiary e-learning consortium should be set up to coordinate the development of e-learning in the higher education sector (Keogh and Fox 2008).

II. E-Learning from Service Management Perspective

1. Why E-Learning?

From service management perspective, e-learning basically is a way to solve many of the difficulties exist with the nature of service: perishable, heterogeneous, and created and used at the same time. The problem is even more apparent for a labor-intensive service like education. With the difficulties of the service characteristics of service, education and teaching usually suffer from limited capacity and inefficiency. With the development of technology, higher education institutes finally can find a new way to serve their customers. Here are some more explanations.

(1). Expanding Access and Alleviating capacity constraints

Widening Access is the fundamental value behind e-learning. (Keogh and Fox 2008) Making education accessible is not only for business purpose. In many countries, educate more people especially those under-served population is the responsibility of HEIs (Volery and Lord 2000).

The capacity constraints and resource limitations that can be overcome through the implementation of e-learning, creating a new opportunity to satisfy this growing demand. (O'Neill, Singh and Donoghue 2004) (Volery and Lord 2000) Physical resources includes not only the classrooms but also accommodation and transportations. Online education can help to avoid overwhelming their

bricks-and-mortar capacities. For example, as (Laserna and Leitner 2008) discussed in the case of Harvard university "… through its distance education program and its innovative use of technology, the Harvard University Extension School has been able to offer online some of the finest courses taught to the residential Harvard College students without making extraordinary demands on faculty."

(2). Capitalizing on emerging market opportunities.

Since education traditionally happens when the teacher and the student are staying in the same place, global operation of education was very costly. With the advance of e-learning technology, now the emerging market, including adult market and global market which the tradition classroom is either too far away or can't fit their time table, has become reachable (Volery and Lord 2000).

(3). Flexibility

Because service is perishable and not storable, the flexibility of a service becomes very important when we can't be two places at the same time. Adult students usually find it very costly to leave work for school. Flexibility is one of the key reason why many of them choose e-learning (Keogh and Fox 2008). As (Stine 2008) stated some previous studies have shown the negative impact that leaving a career for even a short time can have on employability and salary. And students like to use e-learning if it facilitates their learning and allows them to learn any time any where in their own way (H. Selim 2007).

An advertisement of university of Phoenix emphasizes on the possibility of gain a degree without leaving one's word(see (O'Neill 2007, 70)) And a typical term of the global executive MBA program in Duke consists of only two weeks in residency per term and ten weeks of distance learning[23].

The benefit of flexibility is not only for adult students. Studies of Stanford University, the University of Washington and the University of Colorado at Denver all found the same pattern that many on-campus students enroll in an on-line course because it allows them to juggle course schedules with other activities or simply resolve the conflict of schedule (Tomlinson-Keasey 2002).

(4). Reducing Cost/Improving Cost-Effectiveness

Another reason why higher universities use e-learning as a new way to provide education or as a new product is because of the cost efficiency of e-learning (Keogh and Fox 2008). Especially when the population that requires higher education has increased dramatically but the cost and time required to obtain the education have put it out of the reach of the majority of the population (Tomlinson-Keasey 2002). But, in reality, when schools are surveyed, the technologically mediated courses save neither time nor money (Tomlinson-Keasey

[23] Cited from the Global Executive MBA brochure.
http://www.fuqua.duke.edu/programs/duke_mba/global_executive/ , 2010/1/15

2002, 153).

(5). Other Benefits of E-Learning

In addition to the benefits discussed above, (Keogh and Fox 2008) and (Volery and Lord 2000) also suggested other reasons why higher education institutes should adopt e-learning:

i Develop Information Skills/Literacies

By adopting e-learning in teaching, the computer skills and literacies can be improved. (Keogh and Fox 2008)

ii Reputation

Since e-learning is taken as a fashion of public service, providing e-learning as an alternative can improve schools' reputation (Keogh and Fox 2008).

iii Supporting Disable Students

Schools service not only ordinary students but also disable students. E-learning can be used as a tool to service disable students (Keogh and Fox 2008)

iv Serving as a catalyst for institutional transformation.

E-learning is way to raise fund and compete with others (Volery and Lord 2000).

v Improving Teaching Quality

With e-learning, teachers can use more methods to interact with students and help

them to learn. E-learning is therefore also a way to improve teaching quality (Keogh and Fox 2008).

2. Difficulties of E-Learning in Service Adoption

Although, e-learning has already become a highly-invested new direction for education, it is not as successful as many have expected. (Njenga and Fourie 2008) even questioned: "Is e-learning being adopted to improve teaching and learning or because it is a 'virtual fashion' with promising progress in the marketplace?" The International Customer Service Association (2001) reported that only 26 percent of e-customers were satisfied with their internet purchase experiences (Matthing, Kristensson and Gustafsson 2006). E-learning has been identified as a "disruptive" type of innovation in previous studies that is a significant change of the way of teaching and learning. (see (Hannon 2009), (Conole, et al. 2008) for example).

The e-business is usually taken too easily that many people think they can succeed in e-learning as if they can simply copy the traditional business model onto internet. Studies indicate that nearly 85 percent of learners involved in distance or some other type of e-learning quit before finishing their program (Royer 2007).

(Conole, et al. 2008) points out the observation that the rhetoric that accompanies e-learning at the policy level does not match actual changes in practice. The fallacy that one instructor could reach many students at the same time by using

e-learning was unfortunately formed by the application of the economics of distance education to e-learning, together with an added hype of the constructivist notion of transferring the responsibility of learning to the learners and letting the learners take control of their learning process. (Njenga and Fourie 2008)

According to (Royer 2007), Muilenburg and Berge (2005) presented a factor analysis study that examined the factors that created barriers to online student learning. They found eight specific factors that potentially raised barriers to successful student online learning. These factors include (a) administrative issues, (b)social interaction, (c) academic skills, (d) technical skills, (e) learner motivation, (f) time and support for studies, (g) cost and access to the Internet, and (h) technical problems. As these factors are addressed, successful online learning is achieved.

3. Adopter Side Difficulties

(1). Lack of human interaction

i Teacher-student interaction is needed

Because service is a value and experience co-creation process between the customer and the service provider, it is very easy to understand the difficulty to standardize education and put it into mass production. The human interaction is not storable and is not something that can be standardized easily, if not impossible. Online streaming video works well for the lecture part of courses but it cannot support the kind of student-teacher interaction, student collaboration, and other pedagogy that are critical to teaching. (Laserna and Leitner 2008) The issue of

isolation caused by e-learning has sparked a rigorous debate amongst researchers (O'Neill, Singh and Donoghue 2004). As cited by (O'Neill, Singh and Donoghue 2004), the lack of interaction associated with e-learning is of prime concern to Cooper (1999) who re-marks, “electronic contact cannot currently sustain the qualities and multi-dimensionality of the kind of tutor-student relationship that real learning seems to require” . We can’t learn without human interaction would suggest that people can’t learn anything by reading a book in the quiet of a library (O'Neill, Singh and Donoghue 2004).

There are two kinds of human interaction that traditional courses can offer: instructor-student and student-student interaction. While there is a need to reform the teaching and learning pedagogies in the light of new technologies, the drastic and sweeping changes that are sometimes called for are unrealistic and untenable if any meaningful learning or teaching is to take place (Njenga and Fourie 2008). In fact, what the recent development of e-learning have shown is that there is an enormous need for human interaction, and there is a limit to the number of students an expert teacher can support online at any given time. (Njenga and Fourie 2008)

In the study of (Brint, Paxton-Jorgenson and Vega 2003), students found its boring to have no conversation with other students after class and the seldom talk to on-line course classmates. Therefore, on-line course become a do-it-if-necessary course and not preferable one for them. Another example of television education is discussed by (Tomlinson-Keasey 2002). Television was supporsed to bring

universal, high-level expertise into American clasrooms, but the predictedne benefits were never realized because students' interacitons with the medium were passive and teachers' engagement with the material during and following telecasts was awkward and cumbersome (Tomlinson-Keasey 2002).

ii Student-student interaction

Another important human interaction is student-student interaction which is a critical part of the undergraduate experience (Tomlinson-Keasey 2002, 152). Previous studies conclude that university 'life', not only the education, is part of the reason why people go to universites.

(2). Student's Willingness to Adopt

Much of the literature on e-learning is merely a description of what the teacher could do or has done online, while the student experience of those activities goes largely undocumented (Gilbert, Morton and Rowley 2007). Although, on-line education is very widely promoted, the student acceptance is still not as prevailed as most thought.

(3). Students' Ability to Adopt - the Digital Divide

As (Brint, Paxton-Jorgenson and Vega 2003) said, the e-learning course for schools might be the new "digital divide" that between those campuses able to maintain control of the means of educational production and those unable to maintain this control. As (Neill, Singh and Donoghue 2004) discussed that students who have

prior experience of using information technology will generally be more successful in a virtual learning environment than those who do not.

4. Supply Side Difficulties

(1). Pedagogy

One of the important but often neglected fact is teachers need to develop new pedagogy to teach with e-learning. E-learning is not simply recoding the instruction and put it on-line (Huang 2010). There is a greater role to be played by the providers of the learning materials in ensuring that the learners develop the necessary skills to construct knowledge: Accessible information does not turn automatically into meaningful knowledge without the assistance of a teacher or an expert. (Njenga and Fourie 2008)

Any assumptions that the learners, looking for such information, are capable of doing the adaptation themselves are limiting, as very few independent learners would be able to do that. It therefore requires an expert to adapt and contextualize the information or facilitate the student's adaptation of such information (Njenga and Fourie 2008)

Some previous studies argued that the new possibilities of these social networking tools are resulting in a fundamental shift in the way students learn, consume and produce new artifacts. (Conole, et al. 2008) E-learning is one of the new learning trends that challenge the traditional concept of education that the instructor owns

the knowledge and deposits it into the passive students who attend the class (K. R. Smith 2006)

(2). Accreditation

Jones International University opened in 1995 and in 1999 became the first online university to be fully accredited by the North Central Association. (Morey, 2004) Online programs have not been carefully inspected by accreditation bodies and some accreditation bodies such as the Distance Education and Training Council (DETC), was not widely respected (Brint, Paxton-Jorgenson and Vega 2003). In Taiwan, it is not allowed by law to provide an accredited program purely by distant learning.

(3). Readiness of University

As (C. O'Neill 2007) argued, most universities are not ready to offer on-line courses. They have not spent enough time and energies overcome many difficulties in on-line education, they don't have enough supporting staff for e-learning and they just want to make money when the market needs the solution. What is the best way to teach students? This is not answered while most universities have already launched on-line courses. For the infrastructure, many schools are also not ready for things like the bandwidth (謝玉芳 2003).

(4). Quality Assurance

Empirical evidence on the subject of quality is patchy: a 1999 study of 365

examples of distance education identified ‘little or no difference’ between the qualities of education received from distance learning compared with the classroom (O'Neill, Singh and Donoghue 2004). However, critics of this new phenomenon are not convinced. According to a study of 269 HR professionals in September 2000, 61% believed that online degrees were not as credible as the traditional qualification (O'Neill, Singh and Donoghue 2004)

(5). Piracy

The content of e-learning might be very sensitive but the security of the content is not quarantined (謝玉芳 2003). The piracy issue is a big challenge for all kinds of publisher nowadays.

III. E-Learning for HEI in Taiwan

(1). Lack of Understanding in E-Business

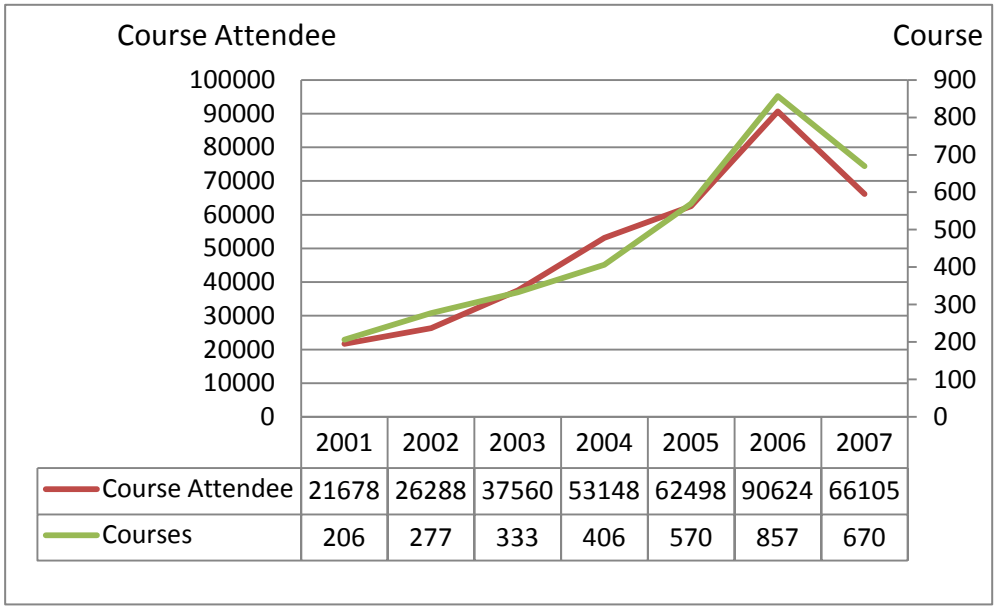
The quit rate of e-learning students is still very high for programs provided in Taiwan (Huang 2010). Schools tend to think e-learning are just putting everything on-line. Without enough preparation and investment in e-learning, there is no way e-learning can be successful (Huang 2010).

(2). Restrictions from Government

The development of e-learning in Taiwan is highly restricted by the regulation. Without approval, for all higher education graduates the number of credits the

earned from on-line courses should be less than half of the required credits(see appendix II and III. Therefore, the development of e-learning program is very restricted. And there is no way for foreign on-line higher education to be accredited in Taiwan.

figure 25 E-learning development in higher education in Taiwan (楊正宏, et al. 2008)



	2001	2002	2003	2004	2005	2006	2007
Course Attendee	21678	26288	37560	53148	62498	90624	66105
Courses	206	277	333	406	570	857	670

Although the number of e-learning course is increasing, the number is actually still relatively small.

Now, according to the new regulation (see appendix IV), in Taiwan, universities can start to offer e-learning master degrees from the year 2006 after the program and courses are certified by the Ministry of Education. Although there are still many constraints, the pass of this rule can be seen as a new dawn. By the end of

2007, there are only 5 classes of master program pass the certificate from the ministry of education.

Global Market

I. The International Higher Education Market

1. The Change of Global Service Trade

The General Agreement on Tariffs and Trade (GATT) has long been the most important treaty governing the global economic system (Barrow, Didou-Aupetit and Mallea 2003). It was established by 23 countries in 1947. And , during 1987 to 1994, another round of negotiation , The Uruguay Round, culminated the World Trade Organization treaty that future include up to 144 countries in the world by the year 2002.

The Uruguay Round also established a framework for trade liberalization in services called The General Agreement on Trade in Services (GATS). GATS is the first multilateral agreement established guidelines governing international trade and investment in service sector (Barrow, Didou-Aupetit and Mallea 2003). The World Trade Organization, through initiatives such as GATS, has increasingly sought to regulate educational services at a global level, including the important export of students (Rhoads 2006). The GATS covers most education services but have more significant impact in higher education since the agreement exempts “services supplied in the exercise of governmental authority” and higher education is committed to be excluded from the exemption. (Barrow, Didou-Aupetit and Mallea 2003).

The signing of GATS(General Agreements on Trade in Services) by WTI has made education a tradable commodity. In the post of WTI scenarios, with the inclusion of education in GATS, a discussion on free trade in education becomes imperative. (Khanna 2007)

2. The Current Market

The market for global higher education was conservatively estimated at $30 billion and the primary part of it is studying abroad (Barrow, Didou-Aupetit and Mallea 2003). About 80% of the 1.5 million students studying abroad goes to OECD countries (Barrow, Didou-Aupetit and Mallea 2003).

Higher education is the fifth largest service export in north America and in 2001 the higher education generated approximately 8.1 billion in net economic impacts. When taking the traveling and living expense into consideration, the figures nearly doubles and creates approximately 80,000 to 100,000 jobs each year (Barrow, Didou-Aupetit and Mallea 2003). This official data is, however, underestimate the real economic activities. The office statistics do not capture the international trade conducted by for-profit educational institutions (e.g. private language institutes) or by corporate universities and training facilities in foreign countries because these activities are recorded by host countries as part of their GDP (Barrow, Didou-Aupetit and Mallea 2003).

IDP Education Australia estimates that the demand for international education in

Australia will climb from 1.8 million international students in 2000 to 7.2 million in 2025. And, Asia will represent some 70 percent of total global demand (Kohl 2006).

There are over one million people currently enrolled in over 50 Australian higher education institutions and higher education revenue is expected to amount to $18.61 billion in 2009 (Morony and Hill 2009). Australia's higher education sector is of extreme importance to society, and as Australia's fourth largest export, to the economy (Morony and Hill 2009). In New Zealand, the education has been the 4-th largest export industry in 2005[24].

The global market for higher education services delivered thought traditional institutions of higher education continues to expand by the increasing number of students studying abroad, the number of foreign visiting scholars, international marketing of curricula, textbook and academic programmers and the establishment of branch campuses in foreign countries (Barrow, Didou-Aupetit and Mallea 2003, 13).

[24] 國際學生成了紐西蘭學校生財工具 【2005-09-26/商業周刊/931 期/P.048 】

Figure 26International Student Mobility (enrollment by year) (Khanna 2007)

Country of Origin	Year 2002/2003	Year 2003/2004	Increase (+)/ Decrease (-) in trade in %
1. India	74,603	79,736	+6.9%
2. China	64,757	61,765	-4.6 %
3. Korea	51,519	52,484	+1.9%
4. Japan	45,960	40,835	-11.2%
5. Canada	26,513	27,017	+ 1.9%
6. Total World	5,86,323	5,72,509	-2.4%

Figure 27International student Mobility to and from India in the Year 2000-2001 (Khanna 2007)

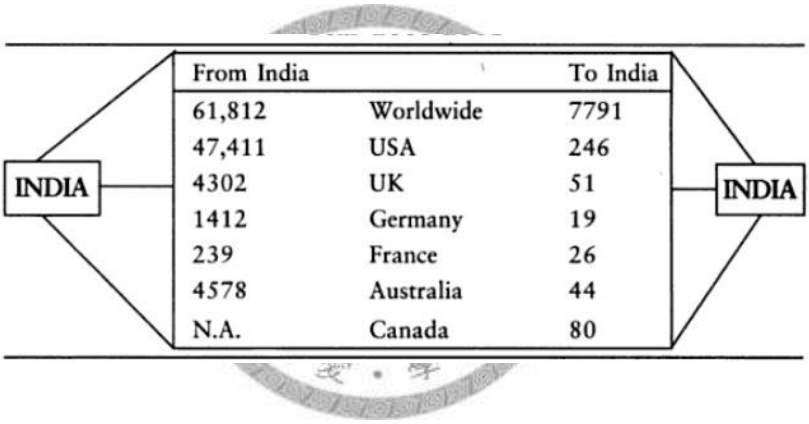


Figure 28International Student Enrollment by the Field of Study in US (Khanna 2007)

Field of Study	Enrollment 2002-2003	Enrollment 2003-2004	% of total enrollment
1. Business and Management	114,777	109, 187	19.1%
2. Engineering	96,545	95,183	16.6%
3. Maths and Computer Science	71,926	67,736	11.8%
4. Social Science*	45,978	57,083	9.4%
5. Physical and Life Science	43,549	44,605	7.8%
6. Fine and Applied Arts	31,018	31,817	5.6%
7. Health and Allied Science	28,120	25,693	4.5%
8. Humanities**	19,153	16,593	2.9%
9. Education	16,004	15,888	2.8%
10. Others	58,473	60,212	10.5%

II. Global Market in Service Management Perspective

1. Why Go Globally

(1). The Concept of Innovation

From service management or marketing perspective, global market is not only a market innovation. In order to make the global operation possible one can see the globalization from the delivery , process, organizational, technology, customer role, customer competence and even systematic innovation perspective.

(2). Market Opportunity

Transnational education usually takes advantage of the following gaps: (1) Demand-Supply GAP. At present, only 8 percent of eligible age group of Indians is enrolled in higher education.(2)Quality GAP(3) Relevance GAP. The gap between the content of curricula and the needs of the job market. In India, higher educational institutions are unable to keep up with the changing demands of the job market. (Khanna 2007)

(3). International Leadership

Academic leadership for higher education institutes is very important. And the global market for higher education institutes in not only a market opportunity but also a way to increate the international recognition and power (戴曉霞 2004, 20).

2. Difficulties and Problems

(1). Global Operation

An organization that runs globally has many difference from the local-only counterparts. The culture, process, organization and even technology are different.

(2). Culture Difference

Education is a very culture-related service. Although, knowledge is very globalized, the way it is delivered can be quite different.

(3). Policy difference

Like some other service products, educational service is highly subject to the policy and rules of each countries. As we've discussed , the definition of customers and stakeholders is complicated, so education is usually subject to highly constrained government laws. As (Heyneman 2001, 355) argued

> *Because of the regulatory distortions and the lingering traditions of state monopolization, markets open to private investment can be radically segmented. In one country, commercial publishers may be invited to compete for the higher education market, but not the secondary school market. In another country it may be the opposite. There is no available 'road map' to discern where these lines of market segmentation may lead, hence no simple manner to predict them.*

(4). Financial supports

i For Service Provider

Globalization usually goes with the international investment. The educational service, however, is comparatively new for financial sectors (Heyneman 2001, 355)

ii For Student

As of July 2006, American students who choose to pursue an online degree from a foreign institution are no longer permitted to use federal financial aid to pay their tuition, however. The Higher Education Reconciliation Act of 2005 prohibits colleges outside the United States from participating in the federal student aid program if they offer courses through "telecommunications."

The same situation also happen in Taiwan. In developing the policy of accepting student from China, the Minister of Education also emphasize that students from China must pay more than local student since they don't pay tax here[25].

(5). Credential Might Not Be Worthy Across Border

Some have raised questions about the quality of the educational experience Western institutions offer to students from China and India specifically. One might ask—To what degree are these international programs legitimate educational enterprises, or are they severely compromised and simply trying to capitalize on the desire of

[25]Source: 中央社 - 吳清基：台生大陸就學會限量 - http://www.cna.com.tw/SearchNews/doDetail.aspx?id=200912120189

Chinese or Indian students to study abroad? (Rhoads 2006)

One might even see dubious credentials. For example, American University of Hawaii has been reported that it is not accredited, licensed or approved by the state of Hawaii and any other accrediting agency and has almost no student in the US but primarily issues degrees and diplomas to non-US citizens, including those in India(Times of India, New Delhi, March 31, 2005) (Khanna 2007)

(6). Global Quality

Here too the quality of such international undertakings often comes under question, as was evident recently when a top Australian official raised concerns about "rogue" education providers taking advantage of student interest in foreign study (Cohen 2005). (Rhoads 2006)

(7). Global Migration and Brand Circulation

From the country-level point of view. One of the driving force of globalized education market is the globalization of the economy. There is a great deal of debate about the effect of the movement of highly educated populations on the knowledge economies of nations. For instance, as an example discussed in (Spring 2008) , many Central American and island nations in the Caribbean had more that 50 percent of their university-educated citizens living abroad in 2000. About 40% of higher-educated adults have left Turkey and Morocco, whereas Africa has lost 30% of its skilled professions (Spring 2008) ,.

Such a situation is called brain drain. The problem of the brain drain is, however, controversial. Some researchers claim positive effects for countries experiencing brain drain. One positive effect for nations losing educated people to wealthier nations are the remittances sent home, with some of these remittances being used for education and health care (Spring 2008)

III. Global Challenge and Chance for Higher Education Institutes in China and Taiwan

1. Globalization in China

(1). A major importer of international education

Strong competition at the global level for creative talents is forcing the Chinese education sector to adopt innovative ideas and new operational models after entry into the WTO. (Wu and Yu 2006) China is currently the major exporting country of overseas student in the world and it is also becoming an important host country. In addition, Chinese HEI also actively seeking collaboration with overseas institutions. (Wu and Yu 2006).

In 2004, Chinese students studying overseas reached 527,400(Wu and Yu 2006). And Overseas students studying in China was increasing at the rate of 30 percent annually. The number is more than 78,000 in 2003. (Wu and Yu 2006)

(2). Education Cooperation and New Degree

Cooperative programs provide opportunities for students to receive overseas higher

education in China and reduce the cost of moving overseas for their education (Wu and Yu 2006). According to the study of (Liang, 2004) cited by (Wu and Yu 2006), the cooperative programs can reduce the tuition fees by up to 75 percent. By the end of June 2004, 169 international cooperative programs are approved by Chinese government and, among all countries, Australia is the largest player in the global cooperation market. (Wu and Yu 2006). Also, the scope of these programs was very narrow. 24 out of 96 Chinese higher education institutions that cooperated with overseas institutions in MBA or EMBA programs. (Wu and Yu 2006).

In July 2001, the Chinese MOE announced the inception of the tenth five-year plan of china's National Educational Development and international cooperation is one of the emphasis. (Wu and Yu 2006).

In order to leverage the brand and the experience of the best universities around the world, one of the college degree and organizational innovation for higher education institutes in China for the last decade was to cooperate with the best schools in the world. For example, the new engineer school has been co-established by the Chiao Tung University and University of Michigan. All the course, material, the evaluation of faculties are all following the standard of University of Michigan. It's an organizational innovation in education that offers the market a new service

and core benefit[26].

Same strategy is also applied by universities in Hong Kong. The MBA program of the University of Hong Kong cooperate with London Business School and Columbia University. The business school of Hong Kong Technology University cooperate with Kellogg Business School of North Western University.

2. Global Opportunity and Challenge for Institutes in Taiwan

Taiwanese higher education institutes are trying to attract foreign students to Taiwan. Some organizations have been established for this reason[27].

For example, New York University Abu Dhabi school provide 10 million scholarship to attract the best high school students from Taiwan….. On the end of December 2009, Hong Kong universities came to Taiwan to attract the best high school students…. From 2005, some of the best students in china also choose universities in Hong Kong instead of the traditionally best choice in China.[28] 20million student are moving around the world for higher education…. There are

[26] 高教品牌戰中國大學的野心 【2009-10-07/天下雜誌/432 期】

[27] see http://www.overseas.ncnu.edu.tw/ as an example

[28] 東森財經新聞, 2010/1/8 20:00.

about 70,000 and 40,000 Chinese students studying in Japan and Korea.[29] Since both China and Taiwan are members of WTO, it China request, we might still have to open our university to Chinese students[30].

3. China Market for Higher Education in Taiwan

There are about 300 million people in China is between 18 to 22 years old while only 20 million of them are enrolled in higher education institute. (Industry & Techonology Intelligence Services 2008). Currently, only 3% of the 18–21-year-olds in China have access to higher education, and this figure is expected to grow to 20% by 2020, resulting in a demand of 240 million in need of education (Merrill Lynch, 2000) (Friga, Bettis and Sullivan 2003) The shortage of higher education institute creates a huge market opportunity for service providers in Taiwan including higher education institutes for both degree and non-degree education market.

As we mentioned in the findings of interviews, there are basically two ways of Taiwanese university to enter the market of China, go to China or attract students from China. And (Lu 2010) argued, we are likely to see Taiwanese school to attract for-degree students from China and some experienced extension school will

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[29] 何卓飛,教育部高教司司長, interviewed in 東森財經新聞, 2010/1/8, 20:00.

[30] 楊敦和, 景文科技大學董事, interviewed in 東森財經新聞, 2010/1/8, 20:00.

create new campus for non-degree programs in China. Few days after (Lu 2010) pointed out the trend, we saw the news about the extension school of Shih Hsin University has started to offer courses in Shanghai. Businessmen from Taiwan can earn credits from the credit-bearing courses for graduate school and students from China can take non-degree courses[31].

[31]世新上海開課　台藝人搶著進修, [TVBS 2010/01/25], source: http://tw.news.yahoo.com/article/url/d/a/100125/8/1zf76.html

University & Industry Cooperation

University and industry cooperation is most for research instead of training. In this study, it is still be taken as part of the educational innovation because of the following reasons. First, we think the creation of knowledge is still a major value of higher education; second, the knowledge has to be created before distributed; third, teach students how to do research has long been part of the university education curriculum. So, in a broader sense, research is part of the education.

I. University Industry Cooperation

1. Introduction

The trend of university-industry cooperation started in the 1980s when the U.S. government designed policies and laws to encourage the cooperation of industries with universities to bridge federal funding gaps for research and cope with global competitive markets (Mendoza and Berger, Academic Capitalism and Academic Culture: A Case Study 2008) The investment policies outlined in the National Science Foundation (NSF) Strategic Plan for the years 2003–2008 continue to emphasize research and development of technologies with commercial applications (Mendoza and Berger, Academic Capitalism and Academic Culture: A Case Study 2008).

Universities' patent averaged 250 a year before Bayh-Dole and by 1998, grew to

4,800 patents a year (James 2009). Corporate sponsorship of university research grew from $850 million in 1985 to 4.25 billion within a decade (James 2009).

In Canada, commercialization of research doubled gross income from $23.4 to $51 million Canadian dollars. Most research universities now have a formal technology transfer process that facilitates the transfer of new inventions to industry (Renault 2006). In UK, in 1989, just over 20% of the total income of universities consisted of research grants and contracts (William 1992). Since the 1980s, significant changes in the relationship between universities and industry have taken place, first in the United States and later in other countries.(Tuunainen and Knuuttila 2009) Almost all campus-based universities and colleges of higher education in the UK have extensive collaborative links with industry. Education plays a key role in attracting massive inward industrial investment throughout the UK. (Davies 1998, 176)

2. Types of Cooperation

According to (戴曉霞 2004, 21), there are four types of cooperation: research sponsorship, research cooperation, knowledge transfer and technology transfer.

(1). Knowledge and Technology Transfer

Experiences at Stanford, Berkeley and a few other elite institutions suggest that technology-transfer initiatives can pay off spectacularly when core expertise and energy are present. (Hearn 2006, 30).

In 1980, the Bayh-Dole Act, or the University and Small Business Patent Procedures Act, was passed along with a couple of other bills that made it possible for universities to profit from patens generated from professional research (Gilde 2007). The Bayh-Dole Act gave universities automatic ownership of patents resulting from federally funded research (Noble 2000). This created a new type of university-industry link, knowledge and technology transfer through patterning and licensing. Research, an activity formerly pursued in service to scholarship and education, as a contribution to human knowledge and learning, is now directed toward the production product (Noble 2000).

(2). Research Cooperation

Collaboration with external partners can be fruitful (Hearn 2006, 30). External parties such as alumni can attract tours, conference, museum showing and so on. Other partners such as vendors for on-line library, textbook, online course delivery, advising, tutoring can also help bring in more revenue. Moreover, use university brand on products can also makes money. To provide exclusive right for restaurant or other shops to operate on campus is also another important funding mechanism (Hearn 2006, 30). For example, in the 1980s the National Science Foundation (NSF) funded dozens of engineering research centers, which were designed as "partnerships" between business and higher education (Rhoades and Slaughter 1997).

Research centers are the most typical way of university-industry links. A research

center is typically funded by a single corporation or tycoon and bears the name of its sponsor. Many examples are discussed in (Soley 2000). The University of Wisconsin-Milwaukee house the Johnson Controls Institute of Environmental Quality in Architecture; Southern Methodist University in Dallas is home to the Maguire Oil and Gas Institute; The University of Utah is home to Garn Institute of Finance (Soley 2000). In 2002, Stanford university signed a 10-year, $225 million deal with Exxon and other energy companies to fund a Global Climate and Energy Project (Gilde 2007, 29).

(3). Spin-off

University spin-off is one of the funding source for many private universities in US. (Gai 2006, 81) Research institutions have moved increasingly toward creating new organizations to generate revenues from research, including for-profit subsidiaries as well as units to nurture start-up firms via consulting and financial support (Hearn 2006, 30). The spin-off companies from American academic institutions between 1980 and 1999 provided 280,000 jobs and $33.5 billion in economic activates to US market. (James 2009). Universities use patent, license and spin-offs to generate considerable wealth (James 2009).

i Reasons

The reason why we've seen the booming trend for university spin-offs can be found in (Oliver 2008) – there are mainly two reasons: (1) the proximity to the professor's laboratory and the direct involvement of the scientist can be crucial for

the success of the scientific-technological venture. (2) providing promising scientists with an in-house opportunity for developing the process form research idea into the market place can not only motivate these scientists to stay content in the academic setting, but also enhance the entrepreneurial signals of the university for potentially entering scientists(Oliver 2008).

In recent years we have witnessed a significant growth of the phenomenon of "scientific entrepreneurship" in which academic scientists become entrepreneurs to exploit the economic potential of their scientific discoveries. (Oliver 2008) The university is acting under a composite role of a venture capitalist, an entrepreneur and a general and scientific manager. (Oliver 2008)

ii Examples

Few examples are provided by (Renault 2006). One of them is Genentech, the first biotechnology company and a spin-off from Stanford University and the University of California at San Francisco, went public in 1980. Based on two technologies, recombinant DNA and monoclonal antibodies, biotechnology knowledge is basically process technology, a new way of making certain substances or producing certain antibodies in quantity

(4). Research Services

Viewing potential returns from patents and licenses and facing rising financial pressures, many universities have reorganized and repackaged their research and

analysis efforts and provide service to the industry (Hearn 2006, 30). .

(5). Joint Venture(Eckel 2003)

such as the new Bioengineering School joint venture between Virginia Tech and Wake Forest (Eckel 2003) Joint ventures that offer programs and courses, such as the new global executive management program offered jointly by Harvard and Stanford. (Eckel 2003)

II. University-Industry Cooperation from Service Management Perspective

1. The Function of Universities within National Innovation System

From the systematic view, the innovation is the result of a system of players and it can't happen until all the different players somehow co-evolve and make the innovation possible. The national innovation system largely depends on how actors, including government, industry, university and other contributing institutions, function and interact with each other to develop and apply innovative knowledge (Hu 2009).

University has been identified as one of the key player in the national innovation system where the institutions and actors that affect the creation, development, and diffusion of innovations (Mowery and Sampat 2005) As (Pavitt 2005, 93) argued since the firms have become more professionalized and university research more specialized, universities now play an important role in providing the trained

researchers for firms in some sectors to perform their innovative activities. And as (Hu 2009, 37) said, universities are science-based resources for industries.

Universities and government research institutes are important contributors to the supply of new scientific and technological knowledge. Although in recent years UK universities (and government research institutes) have been under considerable pressure to move closer to industry(Tether 2002), many studies still believe universities are the best place for basic research which is important but might not be able to be commercialized in few years (Mowery and Sampat 2005).

Publications in prestigious journals such as Nature or Science are a clear and valuable signal- to the labor market of talented young scientist; to final market to attract support from investors; and to the technology community as both a marker of existing capability and an invitation to collaboration (Powell and Owen-Smith 2002, 109).

This pattern is a developing trend for universities throughout the world as the increasingly global environment has pushed shifts in governmental funding and policies, increased reliance on private and corporate funds, and administrative decision-making (Mendoza and Berger, Academic Capitalism and Academic Culture: A Case Study 2008)

Federal funding for university research declined in 1980 to only two-thirds of academic R&D funding, down from a high of 73% in themid-1960s. By 1997, that

share had dropped to 59% and has remained between 59 and 60% ever since (National Science Board, 2000) (Renault 2006).

2. The Role of Government

Many analyst s point to changes in government legislation as the catalyst for the view that universities should play a larger role in assisting industry and enhancing national competitiveness (Powell and Owen-Smith 2002). Undoubtedly, the pass of Bayh-Dole Act is one of the driving force for the link between universities and industry in US.

3. The Move of Talents from Academic to Industry

As (Powell and Owen-Smith 2002, 122) noticed, more and more talents now found it's more compatible with a reasonable life if you choose to do research for industry. This trend also push the link of university and industry to a different level.

4. Problems and Debates

One of the greatest concerns is that these policy changes are occurring rapidly with little attention paid to the effects of these shifts on academic culture, the relevance of academic work, the attractiveness of the academic profession, and the role of faculty in generating and disseminating knowledge (Mendoza and Berger, Academic Capitalism and Academic Culture: A Case Study 2008)

III. Industry-University Link in China and Taiwan

1. University-Industry Partnership in China

Technology transfer from HEI to enterprise has been an emphasized work of the government in China (Liu and Jiang 2001). It is even more true when China become one of the leading nation in terms of its share of the world's scientific publication. (Zhou and Leydesdorff 2006)

2. University Spin-Offs in China

According to (Liu and Jiang 2001), Tsinghua University has spun off a number of highly successful companies owned by the university, and works directly with enterprises to materialize technology transfer.

3. The National Innovation System in Taiwan

The innovation and the industry-university link in Taiwan can be explained by the National system of innovation. Taiwan was very successful in using tax incentives, science-based industrial parks and public research institutions to promote and encourage Research and Development (R&D)and innovation activity in SMEs (Hu 2009).

As the effect of the Bayh–Dole provisions spread, Taiwan's public policy was designed to encourage university-industry link with government as a facilitator (Hu 2009).. Some universities responded by modifying their higher education functions from a traditional education-based orientation towards becoming innovative, entrepreneurial universities (Hu 2009)..

Following the 'Science and Technology Basic Law' that was enacted in 1999, the

Ministry of Economic Affairs(MOEA) encouraged the creation of a series of Incubators in Taiwan from 1996, the Department of Industrial Technology (MOEA) launched a new set of policies relating to the 'Encouragement of Industrial Innovation and R&D' in 2001 (Hu 2009).

The number of technology transfer agreements was very small. The revenue increased from 0.16 million to 27 million in 2001 (馮震宇 2003). The licensing revenues have increased dramatically, to each NT$ 137.9 million in 2004. According to the SMEA, a total of 1,260 companies have been established in these Incubators, and they have attracted investment and capital funding of NT$ 5.6 billion by 2005 (Hu 2009).

4. Spin-off in Taiwan

Unlike many universities in the Organization for Economic Co-operation and Development(OECD) countries, which encouraged the establishment of spin-off companies to exploit academia-developed technology, universities in Taiwan have very few spin-offs due to the academic regulations of the earlier years (Hu 2009).. Thus most researchers retain their academic positions and take a way as sharing spin-off equity ownership with the industrial partners while transfer their technologies or services (Hu 2009).

5. The Bureaucracy of Government in Taiwan

Government is undoubtedly an important part of the innovation system, but many

discussion of promoting the university-industry linkage end up with a frustrated conclusion about the bureaucracy and regulation constraints imposed by the government (see (馮震宇 2003), (Huang 2010)). Considering the important role of coordinator and facilitator as discussed in (Hu 2009), government policy and regulations are still the most important task to focus on right now.

Although, the government had initiated the five-year-fifty-billion project, from the system point of view, it is only a political response to the society with little benefit to the school. As we discussed before, innovation can be nourished by a system when all the interacting parts are ready. As (Huang 2010) argued, the bureaucracy and constraints in the accounting, financing and HR regulations make the money from government very difficult to spend. Same conclusion also be stated by Dr. Li, the principal of National Taiwan University[32] and other scholars[33]. Same for the five-year-fifty-billion project. The policy of the funding from government limit the usage and makes school can only use the funding on things they might not really need[34]. For example, school can use the funding to build new buildings but

[32] 中國大學爲什麼「暴衝」【2009-11-04/天下雜誌/434 期】

[33] 大學法修法的困境【2005-03-01/遠見雜誌/225 期】

[34] Informal interview of Doctor Liu, researcher from National Yang Ming University, graduated from National Cheng Kung University.

can not use them on some items of equipments for experiments.

In Taiwan, when a faculty wants to apply for the funding from National Science Foundation, they have to spend a lot of time in writing forms to explain the usage of funding even on the most tiny and valueless stuffs like pen[35].

6. Corporatization

From 2001, universities start to corporatize in Japan[36]. Corporatization can change the legal relationship between government and schools and make it from control to contract (國立臺灣大學研究發展處 2009). Universities become independent institutions with less control from government and, hiring and recruiting will become part of the decision of the principal and decision-making committees within university[37]. In the long run, it might be the right direction for higher education institutes in Taiwan.

[35] 中國大學爲什麼「暴衝」【2009-11-04/天下雜誌/434 期】

[36]日本大學的廢棄與再生 【2006-11-22/天下雜誌/360 期】

[37]日本大學的廢棄與再生 【2006-11-22/天下雜誌/360 期】, 回歸市場機制 才能激出一流大學 【2006-07-03/商業周刊/971 期/P.096 】

Curriculum War: New Courses for New Markets

Courses are, for most people, the most fundamental product higher education institutes provide. In order to respond to the change of the society, courses also need to be changed. These courses change are discussed in this section.

I. The Concept

1. Demand for Adult, Continuing and Vocational Education

(1). Demand Change

One of the change faced higher education institutes recently is the change of the student profile. The public's growing acceptance of the value of lifelong learning has fuelled an increased demand for higher education services among people outside the traditional 18-24 age range.

(2). Funding Purpose

From another perspective, adult market might also be more lucrative than traditional markets (Volery and Lord 2000) and therefore become a market under spotlight when universities are facing financing challenges.

2. Characteristics of Adult Education

As discussed by (Royer 2007), there are six characteristics of adult education:

i High Interaction

Adult learning is unique in that the process involves a high level of interaction between the learner and all levels of the instructional area.

ii Autonomy and self-direction

Adult students must be allowed to actively participate in the educational process.

iii Use of life experience and knowledge

The instructor must use work related experience, as well as other areas of personal knowledge to develop the topic.

iv Practicality

Often, adult learners desire to put into practice the skills and information they have gathered.

v Respect and value

In an adult learning environment, all opinions need to be given acknowledgment

vi Time Poverty

The ‘for-profits’ have identified ‘time poverty’ as the defining characteristic of the adult worker market. A recent Australian study indicates that the problem is not confined to that demographic: 52 per cent of full-time first year Australian students work in paid employment for more than 11 hours per week. (Ryan 2001)

II. New Courses Developed

1. New Course

Strategic decisions about the development, investment in and delivery of curriculum are being increasingly driven by short-term market considerations(Rhoades and Slaughter 2004). Schools now are providing more summer short course and evening course in response to the change of the demand(Krachenberg 1972, 376)　As one of the interviewee in (Rhoades and Slaughter 2004) put "Summer can be quite lucrative. Chemistry 101 is like a fast dentist: It can generate lots of revenue."

This attitude also evades quality considerations stemming from the fact that summer courses were more likely to be taught by graduate assistants and adjuncts who are poorly supported and not integrated into the basic work of the academic programs for which they are generating credit hours (Rhoades and Slaughter 2004).

2. New Degree

Some schools found it necessary to create new degrees to satisfy students' need (Krachenberg 1972, 376).　Many other units in the sciences were developing "professional master's degrees," targeting students for the business world, since they could afford to pay more (not uncommonly in differential tuition) and have a master's degree delivered to them more cheaply than traditional graduate students. These thesis-free, terminal master's degrees were all about tapping into a new market forth specific purpose of generating revenue that would support the more

valued departmental graduate programs (Rhoades and Slaughter 2004).

Part of the reason professional master's degree programs were cheap to run is because they were staffed by graduate assistants, who were now teaching not only at the undergraduate but at the graduate level as well. Another reason these programs were seen as money makers is because universities could charge students more while providing them with less. It is clear that such programs benefit the universities financially; but it is far from clear that business or society at large actually benefit from them (Rhoades and Slaughter 2004)..

3. Continuing Education and Non-diploma education

Continuing education in US was originally a way university serve the society. For example, in 1904, The former University of Wisconsin President Charles Van Hise spoke of the Wisconsin Idea, namely that the boundaries of the university should be the boundaries of the state, and that research conducted at the university should be applied to solve problems and improve health, quality of life, and the environment for all citizens. (Schejbal and Wilson 2008) Therefore, what continuing education does is to extend the knowledge and research created at a university to audiences that would otherwise not benefit from it. (Schejbal and Wilson 2008)

In 1905, Northwestern University began to offer evening classes and opened the evening division for adult education in 1927; the University of Wisconsin established the University Extension Division in 1907—a separate extension

division from agriculture; New York University established the Division of General Education (now the School of Continuing and Professional Studies) in 1934; and the University of Maryland opened University College in 1947. (Schejbal and Wilson 2008)

Nowadays, continuing education has become another channel for universities to make more money. More courses are offered through the extension schools in the name of continuing education. Extension school is now one of the funding source for many private universities in US (Gai 2006, 81)

4. EMBA

EMBA is one of the funding source for many private universities in US. (Gai 2006, 81). It is an innovation that can be seen as lending the brand name of regular MBA program to attract new students (Weisbrod, Ballou and Asch 2008, 193). It is also a booming market in Taiwan.

III. Corporate Training Market

1. The Corporate Training Market

Management training is a significant share of educational service. The business schools have a of the greatest growth rate and become a significant source of income in many universities. (Pfeffer and Fong 2004) (Friga, Bettis and Sullivan 2003)

According to a report from Merrill Lynch Co. in 2000, corporations and education institutions spend a combined $2.2 trillion on management education and training worldwide, with nearly $885 billion invested in the United States alone. (Friga, Bettis and Sullivan 2003) The corporate education and training market comprises 75 billion dollars, and is expected to grow more rapidly than any other segment (Stallings, 1996). (Breneman, Pusser and Turner 2000, 7) The size of the corporate training market estimated by International Data Corporate in2000 (cited from (Collis 2002, 185)) was about $66 billion.

Private education firms now take in some $3.5 billion annually, corporations now spend more on business education than do all business schools, there are some 1,600 corporate “universities,” and the corporate training market is estimated to be at least $60 billion annually (Friga, Bettis and Sullivan 2003)　About 72% of the training market was still class room training in 2000, but the market of e-learning is rapidly growing (Collis 2002, 185)

Others have partnered with corporations to provide education and training for their employees on a contract basis, sometimes at the corporate location and other times via distance learning. (Eckel 2003, 869) (Hearn 2006, 29) Indiana state university customized its finance and management courses in order to accommodate several major business customers (Natale, Libertella and Hayward 2001).

2. The Higher Education Institutes and Corporate training

In the 1970s, higher education was slow to respond to the need for training within corporations so many corporations formed their own universities. Nearly all of these universities, now about 1600 of them, are not accredited and therefore cannot offer degrees (Morey 2004).

Several corporate universities do offer degree programs often in partnership with traditional colleges and universities. Many of these, however, are no more than new labeling for training departments. These for-profit institutions have capitalized on the fact that companies will at least partly reimburse their employees for tuition costs." (Morey 2004)

As (Lorenzi 2005) argues, universities can be seen as corporate training institutes that select and train candidates for corporate. According to (Vicere, Bode and Freeman 1987), 16 percent of the corporate training and development courses are made by university faculties.

3. Examples of Training Cooperation

A number of example of training cooperation between universities and industry are discussed in (Callan 2004). The Ford Motor Company of Australia, for example, is using training partnerships to achieve a variety of strategic and change management objectives. The Ford Deakin Prime Alliance provides a range of innovative education programs at the undergraduate and postgraduate levels as well as supervisory training, research and consulting services for Ford. A partnership

between Argyle Diamond Mines and Kimberley Group Training, for example, is providing training organized in this remote location which is tailored to meet the mines' two weeks on, two weeks off, work schedule. The training organization is providing technical advice, literacy and numeracy assessments, and administration of the training. (Callan 2004) Western Sydney Institute in its partnership with P & O Cold Logistics is providing customized training for Woolworths staff who work in cool rooms in temperatures as low as minus 28 degrees. (Callan 2004)

4. Corporate University

Corporate university is an innovation of organization to response to the need of corporate training market. For example, Michigan Virtual automotive College(MVAC) was created in 1996 by the University of Michigan, Michigan State University, the automobile industry, the Univeted Auto Workers and the state of Michigan to offer course tailored specifically to the automotive industry (Natale, Libertella and Hayward 2001).

(1). Why corporate education

According to (Ryan 2001), there are three reasons why corporate form corporate universities.

i Pressures of globalization

The pressures of globalization make companies have to increase the training and standardize the training process. When external resources can not meet their need,

they start to develop education themselves.

ii Tailor company need

Different companies have their own culture and value. More confined trainings to their own clients and customers are required. MasterCard University, for example, trains bank staff and vendors using credit cards as part of their contractual relationship or for a fee (Ryan 2001). Sun Microsystems and Microsoft have developed training materials, and mandate a percentage of vendor staff who must be 'certified', or tested, to a specified level. The testing is securely conducted, and rigorous – 50 per cent of first attempts fail (Ryan 2001)

iii Time to market

The technology itself was continually outdated and upgraded. Product 'time to market' was often six months or less, whereas curriculum changes in universities took over a year to wind their way laboriously through committees, and graduate 'time to employment' took another three to four years (Ryan 2001)..

IV. Curriculum Change in Service Management Perspective

1. Difficulties of Continuing Education

(1). Internal Competition of Resources

Faculty instructional time and other forms of support is important for continuing education in higher education institutes, but they often at a disadvantage competing resources with other departments. And this is commonly seen in both public and

private schools.((Laserna and Leitner 2008), (Schejbal and Wilson 2008))

While successful business models are yet to emerge, it is clear that both corporatized universities and businesses have decided that the continuing professional education market – particularly in Business/Management and Technology Systems – will return the highest margins in the business of education, and it will do so through bulk sales to large corporations. (Ryan 2001)

(2). Higher Demand Elasticity

For traditional student, the demand elasticity is usually now. They tend to join universities after high schools and many decide to join graduate after university. For, adult learner, this is not the case. Education is like an investment that can be deferred if the price or the cost is too high or the marketing campaign is not attractive enough.

(3). Change of Customer Role

For traditional education, tuition is usually paid by parents, government or students themselves in the future(student loan). For adult education, customers are usually the user, payer and buyer. The makes education provider have higher pressure in the service quality and have to put more energy in marketing.

V. Adult and Continuing Education in China and Taiwan

1. Adult Education in China

(1). Strong Demand for Adult Education

The majority of the population is currently not educated beyond middle school, and a large proportion leave education after primary school. (Chen and Davey 2008) The percentage of people received continuing education is still low (Chen and Davey 2008) There are more than 300 million technicians and managers in China but only about 10 million currently receive continuing education (Li 2005, Zhao 2003). This means that many technicians do not have the opportunity to update their skills. Further, the general public is largely excluded from continuing education, although some colleges offer courses. The market for adult and continuing education is still enormously large.

(2). Government Support for Non-Credential Education

Currently, the continuing education field is undergoing rapid development and growth. The main driving forces are recent education reform, which permits universities and colleges to set up continuing education programs, and the developing economy that is creating a demand for trained staff. There have been changes in the government's attitude. The government now views continuing education as part the economy's development strategy, which has resulted in further support. (Chen and Davey 2008)

Based on the decision of the 16th conference of the communist party of China, the government policy is in favor of non-credential education. (李建, 段長恩 and 蘇

曉林 2009) By the end of 2002, there has been 87 vocations covered by the government certificate system and has already accumulated 6 million certificate holders. (李建, 段長恩 and 蘇曉林 2009) The non-degree education market is booming in China after joining WTO. More industries are introduced to China market and more talents are required to fulfill the needs. These opportunities create the demand for non-degree education market. (李川 and 李剛 2006) The government policies, especially industry transformation policies, encourage learning new skills also help the development of non-degree market. . (李川 and 李剛 2006) The certificate-required policy also boost the development of non-degree market. (李川 and 李剛 2006)

According to the announcement of Ministry of Education, the number of non-degree students in 2005 is 71 million where 3.7 million of them are learning higher education related topics. (李川 and 李剛 2006) (明小渠, 刘占风 and 张必涛 2008) The non-degree certificate require high quality to gain the recognition from society. Students won't spend time and money for those low value certificate that can't prove their own value. (明小渠, 刘占风 and 张必涛 2008)

(3). A Potential New Market For Higher Education Institutes in China.

Right now, higher education is China is still demand larger than supply. Continuing education is not a matter of life and death. But, since the number of

newborns is declining, many universities have realized that one day, continuing education will be an important source of demand (楊育新 2009).

Table 1 Statistics for continuing education in China from 1990 to 2005 (Chen and Davey 2008)

	Diploma courses			Non-diploma courses			
Year	No. of graduates	No. of schools	No. of faculty	No. of graduates in Ordinary Higher Schools	No. of graduates in Adult Technology Training Organisations[b]	No. of Adult Technology Training Organisations	No. of Faculty in Adult Technology Training Organisations
1990	——	——	——	——	1545	——	——
1991	——	——	——	——	——	——	——
1992	51.77	1198	20.6	177.21	4958.51	28.41	——
1993	——	1183	——	156.72	5706.8	29.83	——
1994	45.53	1172	21	133.7	6625.38	34.48	37.94
1995	63.61	1156	21.34	157.64	7698.19	39.88	45.43
1996	——	1138	21.42	157.16	7698.19	44.28	42.57
1997	——	1107	21.46	239.99	8579.26	45.20	46.29
1998	——	962	20.39	279.5	8682.41	46.48	51.02
1999	88.82	871	20.01	255.28	10156.88	53.42	53.71
2000	88.04	772	18.7	252.12	9396.22	48.56	49.40
2001	93.06	686	17.38	257.69	9270.44	50.79	48.50
2002	117.50	607	16.81	427.39	8118.81	38.95	39.74
2003[a]	159.34	558	15.35	353.25	7242.08	23.06	45.72
2004	189.62	505	15.50	318.84	6957.34	27.71	51.45
2005	166.79	481	14.89	373.39	6743.87	19.86	52.62

[a] No students were recruited in 2004 due to the SARS, and therefore 2002's figure is listed

[b] Adult Technology Training Organisations provide training for workers and farmers

(4). Problems and challenges in non-degree continuing education in China

i The social status of no diploma courses is low (Chen and Davey 2008)

No-diploma courses, is still looked down upon in China (李建, 段長恩 and 蘇曉

林 2009). Although school and higher education is highly valued, continuing education is considered amateurish and of less value. This is because it is considered less developed and lacks rigorous.

Also, some colleges consider continuing education to be a way to make extra profit or to use redundant resources and ignore to provide quality education. This view may discourage people from pursuing continuing education. There have also been complaints that the continuing education field does not respond to the market and competition, and that the quality of the students does not meet the requirements of the market (Chen and Davey 2008).

ii The quality is low

The quality of continuing education is not as developed as other education sectors (Chen and Davey 2008). Teaching methods, curricula and equipment are outdated and not established adequately. Most of the continuing education curriculum is simply replicated from higher education and the difference between continuing education and regular higher education is completely ignored (Chen and Davey 2008).

In china, since the government administrative and controlling mechanism is not well-designed, the quality from good to bad service provider differ from each other dramatically (姚艳杰 and 姚静 2009).

iii Unclear purpose and public confusion

In china, the purpose of continuing education is still taken as a service for those who didn't attend school when they were young. (楊育新 2009) (孙书平 2009). Actually, now a large portion of continuing education is still degree-granting program. (楊育新 2009). The misunderstanding of society makes the continuing education hard to be accepted by the society.

iv Other problems

Higher education institutes are responsible of providing both degree and non-degree education to the society but non-degree education are relatively neglected by higher education institutes. The reasons (李川 and 李剛 2006) argued include (1) Leaders of education institutes think non-degree education is not their major responsibility (2) Currently, full-day degree market still enjoy better market prospect. (3) HEI is not sensitive enough to the market needs and usually use provide the same product to both market (4) The image of the non-degree market suffers from some lower-quality providers

2. Adult and Continuing Education in Taiwan

(1). The Market is Booming

The continuing education have been seen as a good source of income for universities and make the university-owned continuing education booming for the past few year. (林俊彥, et al. 2006) Taking the one of the most successful school,

Chinese Culture University, for example. The revenue from continuing education is about 700 million NTD, accounts for almost 20% of the annual income of the school, and is more than twice as much as the funding from government which is only about 315 million[38].

(2). The EMBA education has been flourish but is in danger now

Executive MBA is a new course provided to the educational market in Taiwan. It has been booming quickly for the last decade and started at about the same time that financial independence of universities was emphasized in the government's policy.

The reasons why universities so eager to start EMBA programs is not only for the higher tuition fee the students paid for the program but also because these students represent potential university-industry links that might bring future benefit for the schools. Needless to say that, these students will be a good source when schools are seeking for donations[39].

EMBA has been a over-matured market in Taiwan. The problem now is 'who has

[38] 文化大學 95-97 學年度現金收支概況, 文化大學 97 學年度主要財務報表 announced in the website of the school, 2010/1/9.

[39] "EMBA 執行長 鬱卒的 CEO", 2007/02/25 經濟日報/C1 版/管理學苑, EMBA 百花齊放 【2002-02-01/Cheers 雜誌/017 期】

not taken it yet?”[40]. In 2006, every year, more than 2000 students graduate from an EMBA program in Taiwan. Students in EMBA programs are necessarily high ranked ‘executives’ in corporation now.

[40] “台灣 EMBA 教育五大挑戰”, 2006 年 10 月 Cheers 雜誌

Organizational Innovation of Higher Education Institutes

I. Organizational Characteristics of Higher Education from Service Management Perspective

1. The Culture and Value

(1). The Difficulty of Being Both Non-Profit and For-Profit

As discussed in the first chapter, the conflict of the value of university is one of the main difficulties faced by universities today. The non-profit organization , as the name suggests, don't pursue after profit and thus usually bear multiple goals that makes marketing complicated and difficult to measure (Gallagher and Weinberg 1991) (Vázquez, Á lvarez and Santos 2002), (Dolnicar and Lazarevski 2009).

Universities have to pursue both mission and revenue goals in order to accomplish their goal while being able to survive (Weisbrod, Ballou and Asch 2008). As a non-profit institute, a university has its social responsibility and it has to become business-like to making enough money to support education. The commoditization of university research is bound to be more difficult than what the proponents of the entrepreneurial university seem to assume (Tuunainen and Knuuttila 2009).

The boundaries between public academic work and private business are not just created at will but reflect the long histories and different societal missions of these

particular two social institutions. (Tuunainen and Knuuttila 2009). The more that they seek to gain such independence by raising revenue from their intellectual property, the more they risk losing their charitable status and public support, including privileged access to research materials. (Whitley 2008)

The existence of multiple relevant publics (or stakeholders/customers). Business usually focus on one kind of customer. The customer of non-profit organizations are, however, more difficult to define. As (Gallagher and Weinberg 1991) discussed, there are usually two groups of customers: the service and the funders.

As our the problem we discussed before, there are many 'customers' that a university has to satisfy. The existence of multiple goals make the operation of higher education institutes especially difficult.

(2). The Culture Needed to be Open and Risk-Taking

Service innovation starts with culture for innovation – a style of corporate behavior that is comfortable with, even aggressive about, new ideas, change, risk and failure (Berry, et al. 2006). It is one of the conclusion of (B. R. Clark 1998) after analyzing five European universities was that in order for a university to be entrepreneurial, the organizational culture must be characterized by a collective mindset in which entrepreneurship is facilitated in a combined top-down bottom-up fashion, including a high tolerance for risk-taking. The way in which the transformation of universities into entrepreneurial universities took place was

through collective action. (B. R. Clark 1998) noted that this transformation occurs when a number of various individuals come together and agree on a new organizational vision. (Gjerding, et al. 2006)

An entrepreneurial university proved to be an organization where risk-taking is a normal phenomenon when new practices are initiated, and where entrepreneurship is often perceived as taking innovative practices to a commercial profit-exploiting stage (Gjerding, et al. 2006).

The focus of efficient and innovation are, in most time, incompatible. As (K. R. Smith 2006) argued:

> *Organizing for performance requires exploitation, an organizational design that facilitates focus and execution … and Organizing for growth, on the other hand, requires exploration, a 'search over broader domains, looking for new opportunities… . It necessarily involves much greater uncertainty, both as to whether anything will be found and then whether it is actually better…Getting the right balance between innovation and execution is the problem, especially in a context in which the organization has focused primarily on execution and now wants to do both. To achieve this balance, the organization should work on the people and the culture – in what he refers to as 'high commitment human resource management.*

For these truly entrepreneurial universities, commercializing research outputs and science-based technologies has increasingly become one of the

(secondary)objectives of research universities (Tijssen 2006).

(3). A Learning Organization

The literature demonstrates that truly innovative organizations are continually thinking about how well their culture supports learning and feedback. (Callan 2004). According to (Callan 2004), the learning organization can be characterized by few features: promote learning, frequent structural changes to establish new ways of working together, and the establishment of formal on- and off-the-job training and learning programs.

2. Leadership and Control

The leadership and control in traditional university is very difficult and it is one of the important task to do when a university try to become more innovative and responsive to outside change and pressure. But as (B. Clark 2001, 18) mentioned:

> *Traditional universities have, for a long time now, been multiversities, even conglomerate gatherings or holding companies, of large stand-alone faculties in such disparate areas as law, medicine, science and technology, humanities, arts, pedagogy, architecture. These faculties, because they have grown very large, do not pull together to operate as a university. They offer their own programs, hire their own faculty, and go their own ways. The so-called university is then a united place in name only: it has little material integration.*

That educational organizations thus can be characterized as “loosely coupled (Tagg

2008). University structure is disconnected from technical (work) activity, and activity is disconnected from its effects (Meyer and Rowan 1983, p. 61).

As (Whitley 2008) argues, there are two sets of collective capabilities that universities can have in the commercialized competing environment. First, the ability to exercise discretionary authority over the acquisition, use and disposal of human and material resources; and secondly to generate particular kinds of problem-solving routines and knowledge that are organization-specific. And, creating such enterprise-specific capabilities would require researchers to share their intellectual goals, resources and knowledge in the joint pursuit of organizational purposes, as distinct from those of individual research groups and scientific fields (Whitley 2008). In most universities, however, since faculties have different interest in different fields, it is not easy.

The traditional organization chart of universities and most other academic institutions was a complex diagram with an intricate network of interlocking committees, responsibilities and chains of command. Therefore, the resource allocation tend to be fragmented and uncoordinated (William 1992, 17). The traditional continental European ministry-controlled university featured a weak rector surrounded by “congregations of powerful professors” (Eastman 2006) Strong central leadership is now seen in many universities and polytechnics as the key to institutional success and this leadership is at least as likely to be managerial as academic (William 1992, 17). Establish a strengthened steering core is one of

the five pathways that discussed by (B. R. Clark 1998) after examining five universities in Europe.

In the past few decades, higher education has experienced the management revolution in the academy which has involved academic managers exercising greater strategic control over the direction of colleges and universities (Rhoades and Slaughter 2004). The presidents of higher education institutions are both seeing themselves as, and being labeled as, CEOs. And their faculties have increasingly become "managed professional." (Rhoades and Slaughter 2004). As (Whitley 2008) stated,

> *...these kinds of strategic choices are more similar to those of holding companies and investment portfolio managers than entrepreneurial decision-making in more authoritatively integrated and directed work organizations. In particular, they rarely, if ever, systematically plan, co-ordinate, continuously monitor and improve research and teaching activities to achieve collective goals by combining specialist skills and knowledge in particular ways.*

3. Organizational Structure

(1). Organizational Structure Change

The overhaul of organization is the fundamental solution but is seldom seen in reality. Most universities establish new departments or campuses to respond to the change of the environment instead. Take University of Minnesota is a rare example. The university of Minnesota including the university's integration of six

colleges into three and the reorganization of the university's extension service, from 92 county-based offices into 18 regional centers far more closely tied to faculty research interests and on-campus academic units. These reforms were reported to have saved over $3 million in 2006 alone and, have led to increased opportunities for collaborative research, enhanced curricular quality and selection, more effective services, and more efficient operations (Hearn 2008)

(2). Research and Develop Center

Now, many universities have established technology licensing or transfer departments to plan and execute the cooperation with industry (Whitley 2008) During the 1980s most academic institutions in US has appointed or increased the number of senior officers concerned with fund raising; business and industrial liaison; overseas students; and public relation (William 1992). The establishment of a development office concerned with fund-raising is also happened in many universities (William 1992). In addition to technology transfer offices, industry-sponsored research projects and spin-off companies are also established. university-based spin-offs can be established by the university technology-transfer office on site to exploit and capitalize on the economic value of the scientific discoveries of the university scientists (Oliver 2008, 197). Under such structure, research groups in universities can be considered "quasi firms" who can establish transfers of knowledge with the industry, or develop research collaborations. (Oliver 2008, 197) By 1998, all but two of the 89 Research I universities in US had

internal technology transfer offices to assist the technology transformation from university to industry (Powell and Owen-Smith 2002).

In addition to these formal arrangements, there have also been subtle, indirect changes resulting in the daily practices of academics becoming similar to those found in corporate settings, including the use of standardized technologies in laboratories (Tuunainen and Knuuttila 2009)

Most entrepreneurial universities have adopted new organizational structures and incentive policies to raise awareness among students and staff such as specialized professorships, entrepreneurship courses, incorporating entrepreneurs into university curricula, and supporting graduates in their start-up activities (Tijssen 2006). Those policies are often aimed at promoting managerial and attitudinal changes among academics toward the commercialization of research findings and toward collaborative projects with business enterprises. (Tijssen 2006)

Considering countries other than US, we can also see the same trend. In Spain, new departments are established to be in charge of the development of market oriented activities in the non-regulated teaching area. Many postgraduate activities and long-life learning programs are provided in a market-like way (Mora and Villarreal 2001, 61) The significance of these activities has encouraged institutions to develop new formal structures to sustain and organize this academic offer, although a wide number of private initiatives as well as academic staff-driven

activities are also covering market needs outside the institutions (Mora and Villarreal 2001, 61).

(3). Developmental Periphery

One of the key feature of the five universities studies by (B. R. Clark 1998) is the existence of enhanced developmental peripheries that can reach across old boundaries to link up with outside interests. There are two forms of these institutions: administrative office that promote outreach – particularly industrial liaison, technology transfer, consultancy and continuing professional education; and, most important, multi- or trans-disciplinary academic units operating as basic units parallel to disciplinary departments. The key point is that an enhanced periphery gives the university a dual operating structure: departmental specialist groups are complemented by project groups that admit external definition of research problems and needed education and training (B. R. Clark 2002)

4. Hiring and Controlling Employees

(1). Difficulty in Hiring Employees

As employers, then, universities have limited discretion over the kinds of skills and knowledge they recruit when they seek to contribute to particular scientific fields, and over the intellectual priorities to be pursued by research groups.(Whitley 2008)

Universities are striving to recruit, train and develop highly motivated and committed employees (Khan and Matlay 2009). In order to achieve service

excellence in higher education, the key intervention areas should be addressed, including recruitment, induction, training, caring, support, reward, recognition, listening to customers and management spending time making processes more interesting (Khan and Matlay 2009). Previous researches suggested that these processes could be adopted in schools by involving most, if not all, employees within an institution (Khan and Matlay 2009).

(2). Problems of Incentive Program

The faculty reward system based on research rather than teaching provides a clear incentive to spend your time on something else (Tagg 2008). Scholars have no incentive to work with the university as a team to face challenges.

A positive service culture can only be achieved by providing programmers to improve quality through rewarding staff who performed well and sharing cases of best practice across an organization. (Khan and Matlay 2009). These represent major challenges for those higher educational institutes which lack institution wide internal communication and reward systems. (Khan and Matlay 2009). The main reason for The lack of qualified and specialized staff and insufficient resources appears to be the persistence of low wages and poor reward system in academia. (Khan and Matlay 2009). The lack of adequate financial rewards in higher education is one of the major issues that affect the recruitment and retention of suitably qualified and experienced staff (Khan and Matlay 2009). In order to resolve this problem, one aspect of the trend has been the appearance on campus of

salary bonuses for faculty (Hearn 2008, 15). And some institutions have started to increase the limitations on faculty's external consulting activities and income. (Hearn 2008)

(3). Civil servant status of staff

The civil servant status of staff limits change in the university system in Spain (Mora and Villarreal 2001, 59) and in public schools in Taiwan. The civil servant status affects both academic staff and non-academic staff, and implies a tenured position. In addition, academic staff are members of national bodies of civil servants whose salaries and basic duties are fixed at central level.

(4). Faculty Hiring Strategy – More Part-Time Faculties?

Faculty is the greatest expense for university (Natale, Libertella and Hayward 2001) For colleges and universities with labor-intensive production functions, the concept of cost effectiveness strikes at two sensitive areas: faculty workloads and organizational productivity (Natale, Libertella and Hayward 2001, 58). The University of Phoenix has just 45 full-term and 3,400 part-time faculty (Natale, Libertella and Hayward 2001). In recent years, campuses have begun to experiment with a variety of new human resource approaches, sometimes altering faculty employment arrangements in fundamental ways (Hearn 2008).

In the 1970s, the proportion of faculty hired on non-tenure line, part-time, and fixed-term contracts started to grow across diverse types of U.S. institutions (Hearn

2008). Since that time, the proportion of tenured and tenure-track faculty members in the United States has shrunk from about 57 percent to about 35 percent, while the proportion of full- and part-timers working off the tenure track has grown from about 43 percent to 65 percent (Hearn 2008). Similarly, the percentage of U.S. faculty in part-time positions has grown in all sectors..... the majority of new full-time faculty hires are now being made for tenure-ineligible positions.(Hearn 2008)

The structure of professional employment on campus is changing in ways that move faculty away from the center of academic decision making and unbundle the involvement of full-time faculty in the curriculum (Rhoades and Slaughter 2004). As (Rhoades and Slaughter 2004) argued other professionals are increasingly being identified as the experts with regard to pedagogy; the emphasis is on learning, not teaching; and the curriculum is being divided into a set of tasks performed by various personnel rather than all being performed by the single faculty member who is developing the course (Rhoades and Slaughter 2004).

In the past 20 years, faculty employment has shifted from being overwhelming full-time position, and on the tenure track, to an occupation in which nearly one-half of the faculty workforce nationwide is part-time, with the majority not being on the tenure track. Of course, in the two-year sector, the proportion of part-timers is much higher, accounting for two-thirds of all faculty members. (Rhoades and Slaughter 2004)..

In summary, (Rhoades and Slaughter 1997) observed four cases of trends: First, an increasingly part-time profession; second, an increasingly managed profession. A professor's career was determined by the administration, either in individual negotiations with faculty or unilaterally; third, an increasingly capitalistic profession, globally; fourth, increasingly commoditized faculty-graduate student relationships

5. Ownership of Copyrightable Educational Materials

Under an academic capitalism regime, institutional policies are created to give colleges and universities, rather than individual academics, ownership and royalty claims relative to the intellectual products of faculty and employees (Rhoades and Slaughter 2004, 43). Policies in US schools are increasingly incorporating terminology like “work-for-hire” and “within the scope of employment,” embedded in the 1976 Copyright Act, terms that extend institutions ‘ownership claims to the intellectual products of their employees (Rhoades and Slaughter 2004, 43). The situation is not the same around the world, for example, till now, faculties in Taiwan still don’t need to worry that school will claim the ownership the their work in school.

II. Organization Innovation for HEIs in China

1. Special Educational Zone[41]

In order to develop higher education with as least constraints as possible, there have been many special education zone established in China.

In Tsinghua university, however, the newly hired (from Princeton University) head of computer technology center and the head of advanced research are both given abundant fund to recruit talents from the world and they are allow to negotiate the salary with their members. The evaluation system also changes that in the research center, scientist are evaluated once in five years, so they can focus on the world-class outcome from their research[42]. Different evaluation systems change the way university faculties doing their research. For example, most private school in Taiwan evaluate faculties' research result every year. So, faculties can help but produce short-term results every year and put less effort on important but long-term researches[43].

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[41] 教育特區

[42] 中國大學爲什麼「暴衝」【2009-11-04/天下雜誌/434 期】。高教品牌戰中國大學的野心【2009-10-07/天下雜誌/432 期】

[43] Commented by CH Hsiang, assistant professor in Chinese Cultural University, in an informal interview with the author.

Another fast growing school is China Europe International Business School, CEIBS. The school was co-founded by European Union and the government of Shanghai in 1994. And it is ranked by the *financial times* as the number eight the global MBA programs. CEOBS has also been put into a special educational zone that the organizational structure and policies are not regulated by the educational policies of the central government[44].

2. School Re-engineering

For example, before process re-engineering, it took a long time in the recruiting process when a talent is hired from oversea. In order to resolve this problem and make the Chiao Tung University more competitive in the talent market, a new and standardized recruiting process was adopted and the problem was resolved[45].

III. Organization Innovation for HEIs in Taiwan

1. Full-Time Faculty is Still the Standard.

Contrasting to the international trend, the full-time faculty in Taiwan is not diminishing since it is one of the major component of government evaluation criteria.

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[44] 台灣輸在三流體制【2004-03-15/商業周刊/851 期/P.102 】

[45] 中國大學爲什麼「暴衝」【2009-11-04/天下雜誌/434 期】

2. New Organization or Structure

In response to the change of environment, new departments are established in Taiwanese universities. Chief finance officer is established in National Taiwan University to coordinate all the funding sources (Huang 2010). The Technology Licensing Offices within universities were set up to encourage researchers to realize their full innovative potential, to draw attention to R&D achievements, to develop practical industry applications, to reach the goals of a knowledge-based economy and to promote the recognition of intellectual property and R&D achievements flowing from university and commissioned research (Hu 2009).

As discussed in (廖述賢, et al. 2006) the extension school in Chinese Culture University can be successful because a new organizational model is used. Unlike most other schools, the extension school is operated like an independent profit-center. It need to be responsible for its own profit or loss. Also, the project team was established. Future center in Chinese Culture University is a team established to push business process reengineering that makes customer satisfied (廖述賢, et al. 2006)

3. The Constraints from the Government Policies in Taiwan.

(1). Full-Time Faculty Requirement

Contrasting to the international trend, the full-time faculty in Taiwan is diminishing since it is one of the major component of government evaluation criteria.

(2). Evaluation and Motivation

Evaluation and motivation systems are very important for organizations to encourage and motivate employees. In Taiwan, it is not very easy with the current bureaucracy policies and regulations.

For example, in public schools, the ceiling of the salary of faculties is determined by law[46]. The fixed faculty salary in Taiwan make us difficult to attract talents and this has become a common concern from many professors in Taiwan universities[47]. For example, Professor Chen En Ko, the ex-dean of the college of management in National Taiwan university, tried and failed to hire a Taiwan-born gradate from MIT with the best the school can offer, about 1.2 million NT an year. The scholar, in the end, was hired by University of Southern California with more than 3 million NT an year.[48]

The lift of the ban of salary ceiling has been discussed for a long time. Even the ministry of education has proposed the de-regulation for many times but so far the situation is still not changed yet. The latest proposal, that increase the ceiling to

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[46] 公務人員任用法

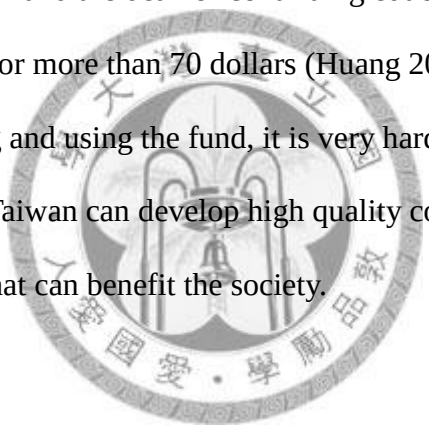
[47] 回歸市場機制　才能激出一流大學【2006-07-03/商業周刊/971 期/P.096 】,

[48] 台灣輸在三流體制 【2004-03-15/商業周刊/851 期/P.102 】

1.2 million NTD, is discussed by the end of 2009,[49] but whether or not it can be implemented is still a question.

(3). Lack of Flexibility in the Usage of University Fund

Although, universities now are responsible to fund themselves, they don't really have the power to spend the money on what they think appropriate by the accounting related regulations. For example, when faculties want to join conference in other countries, it is not allowed, by law, to use the fund they earned from EMBA program[50] and the dean of continuing education school can not even buy someone a lunch for more than 70 dollars (Huang 2010). Without a flexibility in managing and using the fund, it is very hard to imagine how a higher education institute in Taiwan can develop high quality courses and conduct world-class research that can benefit the society.



[49] 彈性薪資 頂尖教授月領逾 20 萬 【聯合報 2009/12/25 】

[50] 台灣輸在三流體制 【2004-03-15/商業周刊/851 期/P.102 】

For-Profit Higher Education Provider

I. For-profit higher education

For-profit higher education has become very successful in US. In a survey of business week in 2003, five for-profit universities get into the list the 20 fastest growing companies in 2003 (Gai 2006, 72)

1. The definition

For-profit institution is a nationally or regionally accredited proprietary institution whose primary function is to provide postsecondary education to students and award academic degrees at either the undergraduate or graduate level (Lechuga 2008).

2. The Development of For-Profit Education Provider

Proprietary education is not a novel concept in US. From their modest beginnings during the colonial period over 300 years ago, proprietary (for-profit) schools in the United States have had a vocational orientation. (Morey 2004) Proprietary schools date back to the 17th century when they prepared individuals for trades and taught basic reading and writing skills (Lechuga 2008).

Today these schools, sometimes referred to as career colleges, are major providers of entry-level skill training beyond the secondary school level. They offer

occupationally oriented certificates and sometimes even associate and bachelor's degrees. By the late 1980s there were approximately 4000 recognized proprietary institutions enrolling an estimated 1.8 million students (Morey 2004)

By and large, for-profit institutions did not compete with traditional, non-profit colleges and universities and remained on the periphery of higher education before 1990s'. (Morey 2004)

There has been an emergence of forprofit, degree-granting institutions of higher education offering programs traditionally under the purview of non-profit higher education. Within a very short time postsecondary proprietary education has transformed itself from a small sector of the economy mainly offering specialized trade training to a $3.5 billion a year business in 1998 (Strosnider 1998) and over $5 billion today that is dominated by companies building regional and national franchises. (Morey 2004).

Take Apollo Group (University of Phoenex) for example, Currently, Apollo offers educational programs and services at 71 campuses and 121 learning centers in 37 states, Puerto Rico, and Vancouver, Canada. Its combined degree enrollment is approximately 200,000 students, about one third of whom are graduate students. (Morey 2004) DeVry University specializes in business and technical education and has over 44,000 undergraduate and 8000 graduate students in business and technology at sites spread across the United States and Canada (Morey 2004)

For-profit institutions have been responsive to corporate needs for trained personnel and adults' needs for career mobility. They have been successful in attracting an increasing number of students from business and industry. For example, Corporate Educational Services, a subsidiary of DeVry, has AT&T, GTE and Philip Morris among its clients. US West and Intel Corporation have agreements with the University of Phoenix (Morey 2004)

For-profit colleges and universities such as the University of Phoenix and DeVry have supplanted traditional (public and private nonprofit) institutions to become the fastest growing sector of postsecondary education (Lechuga 2008)

3. Types of For-Profit Providers

According to the analysis (Breneman, Pusser and Turner 2000), there are three kinds of for-profit higher education institutes. The first group consists of those institutions that are already accredited, as in the case of the University of Phoenix, and DeVry Inc. A second group includes those institutions that are not accredited and do not need accreditation. These are for the most part institutions that do not require financial aid from government. These institutions, such as the IBM global campus and the Oracle corporate training section, are primarily interested in providing employer subsidized training and credentials. The third group consists of those organizations that seek rapid accreditation through partnerships with existing accredited institutions. Examples include the acquisition of Huron University by Whitman Incorporated.

4. Unique Characteristics of For-Profit Higher Education Providers

According to (Eastman 2006), universities can be classified as public universities, private not-for-profit universities and private for-profit providers. But, whether a not-for-profit institution is public or private depends on numerous factors such as legal status, control, finance, common usage. One can nevertheless distinguish broadly, based on legal status and governance, between three basic types of institution (Eastman 2006).

(1). The Goal

Most fundamentally, for-profit higher education and nonprofit higher education institutions are different at their core (Morey 2004). For-profit institutions provide education to make money, while traditional colleges and universities accept money to provide an education (Eastman 2006).

Although the preparation for a career, especially in the professions, is a purpose of traditional higher education, at the center of its undergraduate mission is the provision of a liberal education with its emphasis on cultural heritage, critical thinking, communication skills, qualities of the mind and spirit, and education for citizenship.(Morey 2004) Public or private non-profit universities are public service providers that they need to consider the social benefit of the society.

(2). Course

After analyzing 127 firms that entered the higher education market, (Collis 2002)

found that 75% of the courses offered are in business related fields such as management, performance improvement or specific corporate skills such as IT and a large fraction of the others are courses for professionals, doctors or lawyers.

(3). Customers

For all the higher education providing firms analyzed by (Collis 2002), their first priority is the corporate training courses, which is most lucrative, international market is the second and individuals are the last priority.

(4). Content Designer

Traditionally, we expect the content of education is designed and taught by faculties of a university. It is not the case for for-profit provider. The firms that entering the higher education market tend to hire their own staffs to develop new material and texts or buy content from universities with brand name. For example, Unexst paid Columbia University $20 million (Collis 2002).

(5). Government Support

in general, public universities receive more of their revenue from governments than private not-for-profit universities, which tend to rely principally on tuition fees to sustain themselves. Private not-for-profit universities in turn receive more from government than for-profit providers. (Eastman 2006)

Table 2 Government Subsidy of Higher Education (Winston 1999)

	Subsidy	Tuition	Educational Spend	Price to Cost
All Private School	8,673	6,639	15,312	43.4%
All Public School	8,917	1,233	10450	12.2%
All School	8,807	3,676	12,483	29.5%

As (Eastman 2006) discussed, in the United States, for example, in which all three types of institution are well represented, the proportions of institutional revenue derived from governments were 51% for public universities and colleges, 17% for private not-for-profit institutions and 0% for for-profit providers in 1995. The proportions derived from tuition and fees were 18% for public institutions, 42% for private not-for-profits and 95% for for-profits. In the not-for-profit sector, prices are lower than costs (students are subsidized). Indeed, price did not exist in the traditional ministry controlled public higher education sector in many European countries.

(6). The Cost

With regard to costs, it has been argued that the different institutional norms of the for-profit institutions may enable these providers to reduce costs and achieve greater efficiencies than their peers in the nonprofit sector. The spiraling costs of higher education, at public and private institutions, and the increased burden on individual students, are creating enormous pressure on the nonprofit institutions in the United States and the rest of the world. (Breneman, Pusser and Turner 2000)

(7). Career Focus Curriculum

For-profit institutions focus on students as customers, and provide services for them that minimize the amount of bureaucracy through which a student must navigate. While many adults enrolled in for-profit institutions recognize that they are not receiving a degree from a 'brand name' university, convenience and shorter time to degree attract them. (Morey 2004)

As one education industry analyst has written, "these for profit institutions are not offering education as much as they are offering careers," One school of thought suggests that the degree-granting for-profits are in effect attempting to create or capitalize on a market for a "new vocationalism" (Slaughter and Leslie 1997), in which a degree accompanies a program little different from that traditionally offered by vocational training institutes (Breneman, Pusser and Turner 2000)

In addition to the curriculum, actually mature students usually want a different school life than traditional student. As (Breneman, Pusser and Turner 2000, 17) argues, if for-profits can provide narrowly-tailored skills that lead to specific, high value job placement, older students in particular may prefer this otherwise "no-frills" approach to higher education to institutions providing a wide-array of student services and recreational activities

(8). Flexible Time and Channel

The for-profit institutions meet the needs of the students in numerous ways. First,

because they cater to working individuals, they offer courses at times that are most convenient for their customers. Courses are also likely to be offered online to further meet the needs of students who are unable to enroll in courses offered on-ground. Second, courses and programs are designed to be relevant to the current job market and are offered in an accelerated format (Lechuga 2008).

(9). Tax Status and Donation

Public and private non-for-profit universities are generally exempt from most forms of taxation, whereas for-profit providers are not (Eastman 2006). Donation has long been a important source of education, and is, of course, not a source of funding for for-profit education provider although they sometimes receive donations (Eastman 2006).

(10). Students Might Not Be Enrolled in Other Schools

Another reason that many students enroll in bachelor degree programs at for-profit institutions is that they would not be accepted elsewhere. Recently, some for-profit institutions have witnessed rising minority enrollments. At least half of the students at DeVry University, ITT Technical Institute and Strayer University are from minority groups. (Morey 2004)

(11). Faculty

For-profit institutions challenge principal norms of faculty work life such as faculty involvement in decision-making, tenure, and academic freedom. They alter the

familiar paradigm that defines the academic life of faculty at many traditional colleges and universities, i.e. teaching, research, and service (Lechuga 2008).

In addition, for-profit institutions have reshaped traditional views of faculty work as being a function of one's professional experience as opposed to their formal educational training (Lechuga 2008)... In for-profit institutes education are treated as a commodity that can be bought and sold on the open market

Taking University of Phoenix as an example. It teaches its 60,000 students with a total of 45 full- time faculty members (up from 26 because of worries about re-accreditation) and 4,500 adjuncts. Its libraries have no books and only journals and magazines available online. It operates in industrial locations and shopping malls rather than lovely parks (Winston 1999).

5. The merge of For-Profit and The Traditional Schools

Even traditional such as Columbia, New York University, Temple and the University of Maryland, have undertaken for-profit, online initiatives (Rhoades and Slaughter 2004). For example, the University of Wisconsin has an agreement with Lotus to sell its courses and programs worldwide. Johns Hopkins University has partnerships with Caliber (Morey 2004).

Initially most nonprofit institutions believed that the for-profits institutions did not provide real competition regarding educational quality (Morey 2004). But the situation has been changed. Some well-known for profits, such as the University of

Phoenix, have developed measures to evaluate learner outcomes and teaching effectiveness that far exceeds efforts at nearly all traditional colleges and universities (Morey 2004).

II. For-Profit Education From Service Management Perspective

1. For-Profit Education As Educational Innovation

For a society to provide for-profit higher education, it requires much more than an ambitious entrepreneur to do the job. In this study, we take the providing of for-profit education, if ever possible, as a system innovation. At least the following factors need to be ready to make it happens. First, the government regulation needs to change. In many countries, like Taiwan and China, it is not possible for for-profit institutes to provide higher education. The government needs not only release the constraint of the purpose of education but also provide the environment to make the education profitable. For example, in Taiwan, with the over-supplied higher education market, even if the market is open for new comers, the education environment might still be not attractive for newcomers. Of course, with the current price ceiling for tuition fee and many other restrictions, such as the requirement of hiring full time faculties, the environment in Taiwan is still not suitable for for-profit providers.

Second, of course, the culture or the society need to accept it. In both China and Taiwan, private educators are still not widely accepted as high quality education providers. With this kind of prejudice, the society won't provide a good

environment for high quality player to participate in the society. As we mentioned before, higher education is very asymmetric in terms of information and is therefore another very likely case for the adverse selection to happen. In the end, low quality for-profit providers will become notorious if the market is not mature enough.

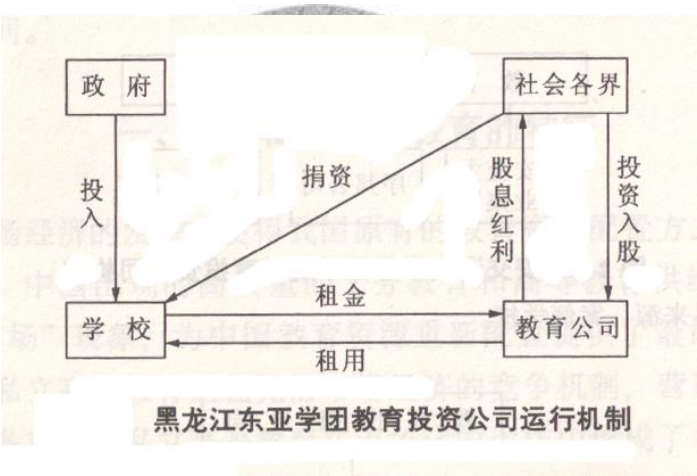
Third, the knowledge of e-learning needs to be ready. E-learning will definitely be an important channel for for-profit education providers to service their customers. Right now, however, as we discussed in the section of e-learning, most customers and society are actually not ready to provide e-learning. The providers have not found the right recipe for catering e-leering to learners and it requires time for this factor to change.

2. Can Higher Education be For-Profit in Greater China?

In both China and Taiwan education is a public service which is only guided by public needs and is non-profit (林本炫 2006) (鄔大光 2004, 246). There seems to be no room for for-profit education in China and Taiwan. But, Although the concept of private higher education is public and non-profit, the reality is different. In Taiwan, the donators of private schools take themselves as the owners and try different way to benefit (not directly gain) from the school (see (林本炫 2006, 79) for more discuss). In China, with many practical maneuver circumvent the restrictions imposed by regulation, the private investors can still find ways to invest in private education and make money.

Many private universities are looking at the opportunities for IPO (鄔大光 2004). Private for-profit corporations are renting universities to make money. (鄔大光 2004). Many examples are discussed in (鄔大光 2004), and the mechanism can be easily seen in Figure 29 An Example of For-Profit Corporation Running Non-Profit School in China .

Figure 29 An Example of For-Profit Corporation Running Non-Profit School in China (鄔大光 2004)



Another mechanism is owned by the government but operated by private investor like the Wan-Li Education Group discussed by (鄔大光 2004).

Although education can not be stated to be for-profit, in China and Taiwan, many investors still find their way to make money legally or illegally. Another example is real estate investment.

Universities create a stable group of customers for the near by commercial activities. Shops, housing, restaurants and many other business activates are attracted by universities. Therefore, establishing a university is a reasonable action real estate investor would do. For example, the Beijing Oriental and Capital New Century University Town are invested by private real estate investors (鄔大光 2004).

Other Service Innovations of Higher Education Institutes

There are still other funding methods we have not discussed so far. They are not necessarily educational service. But, as HEIs are looking for more funding channels, more different business activities are conducted by schools. However, searching for other source of profit is not easy, since everything a school can do is very like provided b numerous private competitors (Weisbrod, Ballou and Asch 2008, 62). Pricing, alumni soliciting, legislature lobbying and even writing a research proposal can be seen as marketing activities (Krachenberg 1972).

I. Pricing Innovation

1. Pricing Innovations from Service Management Perspective

Pricing is one of the traditional marketing concept of product mix (Borden 1964). The change of pricing is, of course, an innovation of product. In higher educational market, tuition fee is the price. And, the tuition for undergraduate education has long been the largest revenue source for majority schools (Weisbrod, Ballou and Asch 2008).

Simply raising tuition might not be seen innovative enough, making it from free to not free is radical for many people. It changes not only how much the service is paid but also how people judge the service. Moreover, the pricing change also determine who the customers are. Therefore, in this study, the beginning of

tuition charge or a sharp increasing in tuition fee are taken as educational service innovation.

Pricing in higher educational institutes is more complicated because subsidy from government and scholarship of any form can be seen as part of the price deduction. Different ways of financing loans and installation plans also can be seen as innovation in services (Krachenberg 1972).

Privatization also is leading to the implementation of or increases in tuition and fees, as many public universities shift to user-fees as major sources of funding (Rhoads 2006). For example, as (Rhoades and Slaughter 2004, 43) discussed, one of the reason why schools are developing professional degrees are because they usually don't need to offer financial support to those students. This is equal to provide a more expensive cause and can be seen as a pricing innovation.

2. Pricing Innovation Strategies

(1). Tuition Raising as a Response to The Cost

Some countries had started charge for higher education recently. China in 1997,UK in 1998 and Austria in 2001 are just some of the examples (Johnstone 2006, 39). In US, although the education is not free for a long time, the price increase sharply when many state governments failed to maintain their ability to support public universities. For example, in November 2009, nearly 100 protesters at UC campuses have been arrested over the past two days in the

demonstrations over a 32 percent tuition increase[51]. Also, some schools start to tilt admissions and enrollments toward students who can pay. This is also an indirect way to increase tuition fee (Johnstone 2006, 39).

(2). Tuition Raising as a Signal

There are many different pricing strategy discussed in marketing literature and one of them is using price as a signal of quality. It is arguable that a higher tuition fee in some schools serve as a signal that the school is providing a better service (Weisbrod, Ballou and Asch 2008).

(3). Reducing Free Services

Many schools start to charge for formerly heavily subsidized residence and dining halls. Sweden, Norway, Finland and Denmark are few examples. (Johnstone 2006, 40).

(4). Separating Other Fees from Tuition Fees

In order to respond to the public discontent of the skyrocketing tuition fee, more and more schools charge other fees instead of adding all of them into tuition fee (Weisbrod, Ballou and Asch 2008, 79)

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[51] Protests of tuition increase continue on California campuses, Los Angeles, California, CNN, November 20, 2009 10:28 p.m. EST, 2009. http://www.cnn.com/2009/US/11/20/california.tuition.protests/

(5). Price Discrimination

In US, the schools' listed tuition just like the list price of a car - students actually pay less than the list price. For private schools in US, the average discount from the listed tuition is about 20% and the discount is different from one student to the other (Weisbrod, Ballou and Asch 2008, 78)

(6). Forms of Student Loans

Student loan is a very important source of funding for students especially for for-profit schools. For example, many for-profit schools are hit strongly by the financial crisis in 2008, compared to other non-profit schools, because their students rely on credit cards to pay for tuitions and the credit financing is tightly restricted during the financial crisis (Weisbrod, Ballou and Asch 2008).

There are two kinds of loans: fixed-schedule and income contingent. The fixed-schedule is the conventional mortgage-type loan which students repay as a pre-defined interest rate. A more recent innovation is the income contingent load where the student repaid the loan based on the future incomes of the students. The Swedish, Australian, New Zealand, South African, Scottish and those UK student loans began in 2006 all feature income contingent repayments (Johnstone 2006). As a service innovation, many schools start to provide their own student loans like the financial service provided by car dealers (Weisbrod, Ballou and Asch 2008).

(7). Shorten Course in Response to The Opportunity Cost

One aspect of pricing is to decide the cost of the product. Since education is characterized by the high hidden opportunity cost, a pricing strategy is to reduce the opportunity cost by shortening the length of the program (Weisbrod, Ballou and Asch 2008, 84).

3. Pricing Innovation in Taiwan

In Taiwan, tuition fee is highly regulated by the government so the only chance for price innovation is from other methods. For example, the Industrial Research Master Program[52] can be seen as a innovation in pricing. According to the regulation (see appendix for details), students can enjoy subsidy for the tuition fee and the subsidy is paid by both the ministry of economy and industry.

II. More Campus

1. More Campus From Service Management Perspective

For marketer, campus are just like more chain stores. Building up more campus for HEI is just like adding a new branch for a chain store. It has long been seen as a marketing activities (Krachenberg 1972, 376). This service model sounds very familiar in our daily life, for education, it's a new benefit proposition and new

[52]產業研發碩士專班

delivery system.

As universities seek to expand their revenue through a variety of profit-seeking endeavors, including satellite campuses and extension programs around the world (Rhoads 2006).

Peter Drucker (1998) had famously predicted that "in 30 years big university campuses will be relics," made obsolescent by more efficient online vendors attracted to the $225 billion postsecondary education "industry (Brint, Paxton-Jorgenson and Vega 2003).

The University of Phoenix has nearly 200 convenient campus and is now the largest private university in North America[53]. The (Harvard Business) school, entirely located for a century in Cambridge, Massachusetts just across the river from the main Harvard campus, has physically opened up in effect a branch campus in the form of a research center in Silicon Valley, the heart of the new economy in the United States. Three thousand miles away, in California, the new center is planned as a place where professors will come to write up their case studies of start -ups and other entrepreneurial firms, and a place where students from Harvard as well as from the immediate region can do some short courses and

[53] According to the data on University of Phoenix website, http://www.phoenix.edu/about_us/about_university_of_phoenix.html, 2010/1/10

engage in job-hunting. (B. Clark 2001)

2. More Campus for HEIs in Taiwan.

In order to make it convenient to students, many extension schools in Taiwan also adapt the more campus approach.

III. Public Relationship – Government Support and Donation

Donation and government support are still one of the most wanted source for higher education institutes. In US, 15% of total revenue of all non-profit schools is from donation (Weisbrod, Ballou and Asch 2008, 103).

1. Public Relation

There are many ways to increase public support by public relation activities. Lobbying has long been a common practice in US. Another example we've seen in US is to link the education to the country's on-going investment in its military industrial complex (Rhoads 2006). Here, globalization-from-below movements, self-described as "bombs for books," have worked to raise awareness about how the use of tax revenue has failed to adequately support education, including higher education.

2. Alumni

Alumni has long been a important source of donation for higher education institutes in US. In China and Taiwan, however, it is still not a common idea. There are three kinds of alumni and we should create marketing plan accordingly:

those who have established a meaningful pattern of contribution, those who have not established but share the same characteristics and others (Krachenberg 1972).

3. Donation in China and Taiwan

The funding from private donation is comparatively very little in Taiwan due to the social atmosphere and the limited tax-free amount. (Gai 2007). And due to the immature society of democracy, some donation from enterprise also become political dispute makes corporate hesitate in building a relationship with public university or government[54].

It's also not enough in China. The Donation accounts for only 2.14% of public university expense in 1999 (孫霄兵 and 孟慶瑜 2005). As suggested by (Gai 2006) and (孫霄兵 and 孟慶瑜 2005), if the taxation of university donation can be encouraged by law like the regulations in US, the situation might change significantly.

IV. University Fund Investment

1. In US and UK

University fund investment is one of the major source of funding in US (Gai 2006,

[54] See "大學校長憂寒蟬效應" 2008-07-04/聯合晚報/A4 版(after the suicide of the CEO of Polaris Security) for example.

79) Successful examples includes Harvard University, Yale University and Princeton University. In Japan, Waseda university also started to invest university fund in real estate fund and utilities-related securities (Gai 2006, 79)

In UK, the average income from investment is about 2% of total income in 1988 (William 1992).

2. University Fund Investment in Taiwan

Properly invest university fund is a new funding sources in Taiwan (Gai 2006, 84) In 2002, the modification of Public University Fund Act made it possible for university to invest the fund. (Gai 2006, 84) For example, university can invest in firms in the business incubator of the university[55].

A related successful story is the pension fund of FCU in Taiwan. The pension fund actively invest in the stock market and has made about 25% in the year 2009 after the financial crisis from 2008 to 2009[56].

V. Auxiliary Enterprise, Facilities, Real Estate and Others

Auxiliary enterprise are those athletics department, bookstore, hospital, dining

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[55]小企業的培養皿 育成中心【2002-01-01/Cheers 雜誌/016 期】

[56] 國內大學首檔 逢甲退撫基金 一年賺 25% 【2009-12-30/經濟日報/B5 版/基金天地】

facilities and even financial services such as debit card. Sometime, universities are into real estate business or simple renting existing dormitories. (B. Clark 2001) (Hearn 2006, 30).

In order to make money, universities sell everything the have. In 1996, the medical school of UCLA even sold out dead bodies to other outside entities without permission of the relatives of the deceased (Gilde 2007, 28)

1. Book Corporation

College students represent a captive market for booksellers (Kniffin 2000). Many universities are now renting their place and chartering book store to make money in schools. One successful example in US is Barnes and Noble College Bookstores presently operates on approximately 350 campuses (Kniffin 2000).

2. Food Services

An successful example the campus branch of Marriott Management Services called Sodexho Marriott which operates in 900 campuses.

3. Credit-card Cooperation

Schools now are cooperate with credit card companies to integrate student ID card with a credit card. For example, the City University of New York has introduced a new ID card on which the CUNY logo and Citibank's logo are displayed (Kniffin 2000).

4. New Branding

Establishing a new brand is also a service innovation. If we accept service is about the experience, and branding is part of it, then creating a new image of university is a service innovation activities. Back to the argument why people choose higher education, one of the reason is the signaling effect. Therefore, a new branding strategy or positioning can be seen as the value added activity for the current students, a new product for new comer and even an after service for graduates. For example, recent years, departments in universities and universities in Taiwan are trying to rename in order to gain a better branding and positioning in competition. When a department of agriculture become biotech, it attracts more students, more industry cooperation and it benefits all students that are taking, will take and have taken courses in the department.

5. Selling the Names

In US and some other countries, there have been a long tradition of endowed chairs which were first established by universities to honor nationally known scholars who taught at or graduated from them. For example, Harvard University's Charles Eliot Norton Professorship of Poetry honors the university's first professor of the history of art, who died in 1898 (Soley 2000). Increasingly, endowed chairs are funded by and named for corporations when a generous donation is received. We can call it the name selling business. For example the Lamar Savings Professorship of Finance at Texas A&M, named after a defunct savings and loan whose operators were convicted of embezzling $85 million (Soley 2000). .

6. Consulting Service

Business knowledge-intensive services have achieved an important role in two ways: due to technological innovations; due to the diffusion of knowledge for developing best practices. knowledge-intensive services provide the key motivating elements for the creation of value. (Rubalcaba 2007) Organized institutional consultancy was one of the innovations of the 1980s in UK (William 1992). In 10 of the 14 cases surveyed by (William 1992), consultancy service is functioned as a profit making enterprise. The average daily consultancy rates charged by universities and polytechnics ranged from about 150 to 500 pounds in 1989 (William 1992). As an example in US, UC Berkeley has, for years, provided managerial service for the federal government's Los Alamos National Laboratory in New Mexico (Weisbrod, Ballou and Asch 2008). Research universities compete vigorously for billions of dollar annually from National Science Foundation and National Institute of Health.

7. Sports

University sport is an important source of funding in US universities. Some schools ever pay a weaker team to play with them in order to create better record. And because, the weaker team is always willing to travel to the stranger's home stadium with a lower cost (Weisbrod, Ballou and Asch 2008, 64).

Conclusion and Suggestion

I. Conclusion

Marketization of higher education has become an inevitable trend around the world. In Taiwan, the business activities and operations of universities, however, are not very successful. We conclude this study with some suggestions for the funding problems of higher education institutes in Taiwan.

1. Suggestions for Higher Education Institutes in Taiwan

(1). More Investment in E-Learning is Required

E-learning was the dream that has not been fulfilled yet. Many people even start to believe that e-learning market is not ready yet. In this study, however, we believe that e-learning is a promising market for higher education institutes especially when there is a chance to embrace the a rapid growing mandarin speaking market – China. The only problem is schools should understand the difference between e-learning and traditional training. If schools can start to invest resources in both the infrastructure and the pedagogy of e-learning, Taiwanese schools might be able to penetrate the market in a short time.

Many different types of service innovation should be considered together. As long as schools spend enough time and energy on the technology , organizational, delivery and also customer competence innovation, students are actually not so

hard to change.

(2). More time and energy on China market is suggested

Chinese market is the most important market for many industries in Taiwan. Education industry, however, has not received enough benefit from China yet. The market size of Chinese market can be seen as the ultimate solution for the over-supplied Taiwanese market, but the uncertainty of government policy of both sides is still a very big issue.

As we discussed in this study, non-credit programs is a reasonable first step for many schools to reach students in China. Schools in Taiwan, however, have not really started to seize the opportunities and many of them are just waiting for the government to import students from China.

Although the demand of higher education in China is high, it is not high enough to make students from China come without judging. We believe students from China will only go to well-known schools in Taiwan and schools that have not start to prepare and to differentiate itself from others will not be able to enjoy the chance. More time and effort should be put by schools to understand customers in China and start to innovate in the core benefit of the educational products they want to offer.

As long as schools start to understand that they’re offering educational service and should discard all the bureaucratic procedures and policies, Chinese market is still

very bright for higher education institutes in Taiwan.

(3). There are Still Rooms for Industry-University Cooperation

For public schools, the research project from government and industry will still be one of the major source of funding. Schools, however, should spend more time on commercializing it research result. One big issue for both public and private in Taiwan is how owns the result of the research. When patents are owned by faculties, schools can not really get the benefit when the result of the research is fruitful. More organizational innovation is required for public schools to convert the abundant research power into profit.

Recent years, more and more public schools start to focus on the university incubator[57]. One of the main reason is it is one of the 'allowed' investment by law(see appendix V). Although it is still in a early stage for many schools, we believe it is a right way to go for both public and private schools in Taiwan.

For private schools in Taiwan, about 60% of funding is still from tuition and research is still not a very big part of revenue[58]. The only chance for private schools, with much less support from government, is to focus on niche research

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[57]人才的搖籃？知識的賣場？【2004-07-15/天下雜誌/303 期】

[58]人才的搖籃？知識的賣場？【2004-07-15/天下雜誌/303 期】

fields. For example, Shih-Chien University is very famous for its Collect of Design and it can get industry cooperation opportunities for its outstanding quality of design[59].

Another common industry-university link for both public and private schools in Taiwan is vocational training. Under the agreements between industry and schools, students are trained to fit the need to an industry or a company. This will still be an important way for schools both to receive financial support from the industry or company and to promote the school by providing job placement for graduates[60]. For example, National Chung-Hsing University had a customized program for AU Optronics Corp. (AUO), Taiwan's largest and a global leading manufacturer of thin film transistor liquid crystal display panels (TFT-LCD). Students are trained for the company and can work for the company after finishing the program[61].

(4). New Business Opportunities are Everywhere – But, Are They Ready?

New Business Opportunities are Everywhere. The readiness of origination is the

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[59] 私校正在出頭天 【2009-12-01/遠見雜誌/282 期】

[60]人才的搖籃？知識的賣場？【2004-07-15/天下雜誌/303 期】

[61] 大學搶進中科 爭商機 【2008-03-26/天下雜誌/393 期】

key. Both private and public can make money by all kinds of business activates, but not many of them hire professional managers for this.

Take continuing education as an example, even in private schools in Taiwan, most of the chief executives of School of Continuing Education are still a member of faculties. There are many talents in the market and there are many business opportunities in the market, but most schools are simply not ready for them. Organizational innovation, we believe, is still the first step. The change of the culture, the organization, the policies and the support from the top managers of the schools is actually the very first step schools should pay attention to before whining for the competitiveness of the market and the shrinking of the size of students.

2. Suggestions for the Higher Education in Taiwan

(1). Free Higher Education from Political Dilemma

Although many people, including most part of this study, blame the government for putting too much constraints on higher education in Taiwan, it is actually the political power and benefit, like an invisible hand, preventing the real liberalization from happening.

Making everyone eligible to higher education, especially the students from low-income family, is the politically correct goal to pursue, while the failure of higher education system is not so obvious and not very serious in terms of the election result.

In this study, we believe public school are responsible and accountable for some social objectives while the whole school system is not. It is like the medical system that people with less resource can get enough care from government while others can choose how much they would like to pay to receive better health care.

In Taiwan, we believe, public schools should still receive enough funding from government and bear the responsibilities such as charging low tuition fee, conducting fundamental research, cultivating the students and society and so on. Private schools, on the other hand, should be release from the leash. Private schools should be able to decide who they want to provide the service to, the tuition fee, how many full-time faculties they want to hire, the channel of the delivery of education, the usage of the school fund and so on.

In order to make public schools more efficient, as a social organization, public schools should be corporatized. Government can still own the schools and ask public schools to fulfill its social responsibilities but should not interfere the schools more than that. By corporatization the schools, schools can be evaluated only by the result and not by the process. The ceiling of faculty salary, the restriction of the accounting regulations for government agencies and even the types or numbers of for-degree programs can be decided by the schools.

The power of accreditation of schools should also be handed over to an independent non-profit organization that check the quality of education instead of

using it as a tool to control the activities in universities. The government should subsidize students from low-income families while charge others higher in order to establish a fair government service. The government should further consider a student loan system that charge tuition fee according to the future income of the student.

(2). Make For-Profit Higher Education Possible

Market power, arguably, is still the most strong force to make a system efficient for both profit and non-profit purposes. Government should intervene a system only when the market fails. The education is Taiwan, as discussed above, should be freed further.

Why education can not be a profit-seeking industry? When private institutes can provide health care, public transportation or manage government pension fund, why they can not provide quality education? Government should focus on making sure schools are do what they should do but not prevent private companies to provide education service.

The last but not the least suggestion of this study is to release higher education from government constraints. For-profit higher education is a daunting idea, but with the success and obviously better quality of private education providers in Taiwan, for-profit universities, we believe, can also become a very successful industry in Taiwan and become a major service exported from Taiwan.

II. Research Limits and Future Possibilities.

Due to the limit of research method, the progress of the development of the theories in academic society and the knowledge of the author, this study is constrained by the following facts:

1. Limits of Interview

As (Bogdan and Billen 1982) discussed, qualitative study might not always be consistent – the result can differ according to the data collected, but the data collected in qualitative researches thick, rich and deep, which often override the preconceive attitudes of the researcher. Therefore, in our study, we acknowledge that the results from the interview is by no means complete. It provides us deep understanding and information, of course.

2. Limited Scope of Literature Review

The scope of previous studies and relevant documents is by no means comprehensive and complete. We can read as many as possible but there must be many studies missed in this study. But, this kind of search is limited by the knowledge and resource of the author. The missed studies might contain important information that can lead us to different solutions of the same objectives of this study. This is also a possible new direction for future research.

3. Only Positive Claims Are Provided

The model and conclusions in this study are all positive only. Positive claims are

only about facts and observations. Due to the current development of service innovation and operation, we don't have enough information and knowledge to provide constructive suggestion in many cases. Although the author put some opinion and suggestions in the discussions, this is still not a normative claim that reader can see a verified model that provide constructive suggestion. This limit, however, can be a direction for future studies of related fields.

Appendix

I. 大學校院設置產業研發碩士專班推動實施要點

發文： 中華民國九十三年十一月二日 台高(一)字第 0930144392 號 令

台高(一)字第 0960154073C 號令修正(96.10.26)

一、教育部（以下簡稱本部）爲執行「擴大碩士級產業研發人力供給方案」及「產業人力套案」，特訂定本要點。

二、爲填補國內現階段產業發展所需人力之缺口，有效支援國內科技產業投入研發創新，提昇國內科技產業競爭力，特推動大學校院設置產業研發碩士專班（以下簡稱本班），期於九十六年度至九十八年度增補四千八百名碩士層級之產業研發人力。

三、本班設置領域，以國內科技產業研發人力供給不足之電資（包括電子、電機、電控、電信、資工及光電等）、材料、物理、精密機械等科技領域及傳統產業領域(包括金屬、運輸工具、電器及民生化工等)爲主。

四、大學校院申請設置本班之條件爲設有與前點規定相關之研究所，其相關資源條件齊備，且辦理成效良好者。

五、本班之課程及師資應符合下列規定：

課程之內容應強調實作性能力之培養，並切合產業之需求，課程規劃可邀請相關合作之企業共同參與。

可採密集式課程設計，除日間開課外，亦可兼採夜間、假日及寒暑假期間開課。

實作性之課程可聘請產業技術專家擔任授課，國立學校亦可在校務基金自籌經費許可範圍內聘任編制外約聘教師，以應開課之需求。

六、本班修業期限以不超過二年爲原則。

七、本班之招生方式及名額應符合下列規定：

採單獨招生方式每年分春季班、秋季班兩次招生，並採公開招生方式。

每班招生之名額以不超過三十名爲原則，不計入本部總量管制之限制。

招生對象爲第三點規定之科系及相關系所畢業生，試辦期間男性限免服兵役義務或役畢者，並視試辦情形再予檢討。

本班學生應爲全時學生，不得以在職專班模式進行招生。

八、本班畢業論文主題應盡量配合第三點規定相關產業實際需求。

九、本班設置所需經費，除學生繳交之學雜費外，由經濟部按實際入學人數，以定額方式補助，補助經費之撥付原則，依該部規定辦理;其不足部分，由合作企業負擔之。

本班學生學雜費依照國立大學碩士班之收費基準收取之;其有適用學雜費減免及優待者，其減免及優待之經費，由經濟部與合作企業協議分攤之。

十、本班之開辦計畫應由學校與企業共同研擬，除函報本部外，並送請經濟部專案辦公室彙整後，提送經濟部會同本部邀集學者專家召開會議審查之。執行內容須與計畫精神或與核定招生內容性質符合，另鑑於大學招生之公平性，本班錄取合作企業員工超過百分之三十之學校及企業，將不予通過或酌減名額。

十一、本班之招生應依據大學法第二十四條及其施行細則第十八條，擬訂其公開招生辦法，併同開辦計畫報核，且應秉公平、公正、公開原則辦理招生事宜。

十二、透過本班開設之合作過程，可作爲學校調整一般教育人才培育課程之參考，及強化產學合作之基礎。

十三、本班每年招生總額以一千六百名爲原則，並得視實際需要及審查情形增減之。

十四、合作之企業應承諾雇用本班畢業學生七成以上。

十五、學校應與經濟部專案辦公室簽訂「補助款契約書」，經濟部專案辦公室得定期辦理座談及訪視追蹤查核，本部視開班學校辦理之成效及合作企業配合狀況，作爲每年核定開班之審核依據或給予學校相關行政處分。

II. 大學辦理國外學歷採認辦法(部分條文)

民國 95 年 10 月 02 日

第 8 條　國外學歷符合下列各款規定者，始得認定：

一、畢（肄）業學校應爲已列入參考名冊者。未列入參考名冊者，應爲當地國政府權責機關或專業評鑑團體所認可。

二、修業期限、修習課程，應與國內同級同類學校規定相當。

第 9 條　前條第二款所定修業期限，持學士學位者，累計在當地學校修業時間至少須滿三十二個月；持碩士學位者，累計在當地學校修業時間至少須滿八個月；持博士學位者，累計在當地學校修業時間至少須滿十六個月；碩士、博士學位同時修習者，累計在當地學校修業時間至少須滿二十四個月；以專科學校畢業學歷或具專科學校畢業同等學力進修學士學位者，累計在當地學校修業時間至少須滿十六個月。

各校應依上述原則、對照國內外學制情形，以申請人所持國外學歷當地國學制、修業期間學校行事曆及入出國紀錄等綜合判斷。修讀學士學位表現優異者，其修業期限得由各校衡酌各該國外大學學制規定及實際情況，予以酌減。

經由國際學術合作模式，同時在國內外大學修讀雙學位者，其二校修業時間，得予併計。持學士學位者，累計在二校修業時間至少須滿三十二個月；持碩士學位者，累計在二校修業時間至少須滿十二個月；持博士學位者，累計在二校修業時間至少須滿二十四個月，不適用第一項規定。

依前項在二校修習學分數，得予併計。但在二校當地修習學分數，累計須各達獲頒學位所需總學分數之三分之一以上。

第 10 條　第八條第二款所定修習課程，如以遠距教學方式在符合第八條第一款規定之學校修習科目學分，或經由國際學術合作在國內公立或已立案大學修習學分，並以此獲得國外學校之學位者，其學分數應符合國內遠距教學規定。

第 11 條　國外學歷有下列情形之一者，不予認定：

一、經函授方式取得。

二、各類研習班所取得之修課證（明）書。

三、取得博士學位候選人資格因故未獲得博士學位，申請認定相當於碩士學位資格。

四、未經註冊入學及修業，僅以論文著作取得博士學位。

五、名（榮）譽學位。

六、非使用中文之國家或地區，以中文授課所頒授之學歷。但不包括高級中等學校學歷。

七、未經本部認可，在我國所設分校或以國外學校名義委託機構在國內招生授課取得之學歷。

III. 大學遠距教學實施辦法

發布日期　民國 95 年 09 月 08 日

第 1 條　本辦法依大學法第三十條規定訂定之。

第 2 條　本辦法所稱大學（以下簡稱各校），指國內公立或政府立案之私立大學，不含空中大學。

第 3 條　本辦法所稱遠距教學，指師生透過通訊網路、電腦網路、視訊頻道等傳輸媒體，以互動方式進行之教學。

本辦法所稱遠距教學課程，指每一科目授課時數二分之一以上以遠距教學方式進行者。

第 4 條　各校辦理遠距教學應指定專責單位辦理，並得視課程需要，置助教協助教學或提供教材製作支援。

第 5 條　各校辦理第三條第一項之電腦網路教學，應建置具備教學系統、教學實施及教材製作等功能之學習管理系統，並於該學習管理系統上進行教學。

第 6 條　各校開授遠距教學課程，應擬具教學計畫，送課程相關委員會研議，提經教務會議通過後實施，並報教育部（以下簡稱本部）備查。
前項教學計畫，應載明教學目標、適合修讀對象、課程大綱、上課方式、師生互動討論、成績評量方式及上課注意事項，且應公告於網路上供查詢；其爲電腦網路教學者，應將學習管理系統功能納入教學計畫。

第 7 條　學生修習遠距教學課程成績及格，且符合大學法施行細則有關學分計算之規定者，由學校採認其學分，並納入畢業總學分數計算。

第 8 條　學生學位之取得，其修習遠距教學學分數不得超過畢業總學分數之二分之一。

第 9 條　學校開設數位學習在職專班，應依本部申請審核及認證相關規定，報本部審查通過後始得爲之。
前項所稱數位學習在職專班，指依本部公告之領域類科辦理之在職專班，其課程時數二分之一以上以遠距教學方式進行者。
數位學習在職專班學位之取得，不受前條修習遠距教學學分數規定限制，其畢業證書應附記授課方式爲遠距教學。

第 10 條　各校與國外學校合作開授遠距教學課程者，以本部建立參考名冊所列之國外學校爲限。

第 11 條　各校應定期評鑑學校所開設遠距教學課程及教學成效，並做成評鑑報告，至少保存三年。
本部得至學校進行遠距教學實施成效評鑑及審閱相關資料；評鑑不合格者，得限制或禁止其開設遠距教學課程。

第 12 條　專科學校實施遠距教學，得準用本辦法規定。

第 13 條　本辦法自發布日施行。

IV. 數位學習碩士在職專班申請審核及認證作業要點

中華民國 98 年 4 月 29 日教育部台電字第 0980054227C 號令修訂

一、教育部（以下簡稱本部）為執行大學遠距教學實施辦法第九條規定，辦理數位學習碩士在職專班（以下簡稱本班），提供在職人士及回流教育利用數位學習進修管道，並強化國民終身學習誘因，特訂定本要點。

二、本要點所稱數位學習在職專班，指依本部公告之領域類科辦理，且其課程通過本部數位學習課程認證達畢業學分二分之一者。

三、本要點每學年核定開班總量為十三班，每班招生名額以不超過三十名為限，招生名額採外加方式辦理，本部並得視實際需要及審查情形增減之。

四、申請資格：

（一） 除空中大學以外之國內公立或經本部立案之私立大學（以下簡稱各校），相關資源條件齊備，並已開設符合相關領域研究所者；各校辦理遠距教學採跨國合作者，合作之國外學校以符合本部採認規定之國外大專校院為限。

（二）開設中小學教師在職進修碩士專班者，除應符合前款規定資格外，並以師資培育之大學為限。

五、開班、課程及師資之條件：

（一）專班之開設申請應經各校校務會議通過。

（二）專班規劃開授之遠距教學課程應為業經本部備查且符合第二點規定。

（三）師資應符合大學教師規定之任用資格。

（四) 辦理數位學習在職專班之系所，應符合本部師資質量考核指標。

（五）通過申請之專班有關課程、師資等有下列各目之一異動者，應說明事由並檢具書面資料，經本部同意後始得實施：

1、通過認證之課程，原認證項目有重大改變或異動比率超過百分之三十以上者，應重新認證。

2、數位學習課程認證之師資異動，應說明事由並檢具教師遠距教學課程相關經歷，於事前以書面申請，經本部同意後始得為之。

六、修業期限：

修業期限為一年至四年。但未於規定期限內修滿應修課程、未完成學位論文或技術報告者，得依各校規定酌予延長。

七、招生方式：

（一）各校得依本部每年核定之班數及名額，選擇次年春季班或秋季班開班。

（二）各校招生應組成招生小組辦理，招生作業應符合公平、公正、公開原則；其考試科目、方式得針對在職生之特色訂定，工作經驗及工作成就得列入評分項目。

（三）本班之招生應依大學法第二十四條規定，於核定辦理後，擬訂招生辦法，報本部核定後實施。

八、招生對象：

（一）於國內公立或經本部立案之私立大學畢業，取得學士學位，或於符合本部採認規定之國外大學畢業，取得學士學位，或符合報考大學同等學力認定標準規定，並有相當工作經驗年限之在職者。

（二）中小學教師在職進修碩士專班招生對象，除符合前款規定外，應具高級中等以下學校及幼稚園合格教師證書，其招收資格條件依下列規定辦理；同分時並依下列順序錄取：

1、現任之校長、園長或專任教師，並具備一年以上之教學年資者。

2、現任之代課或代理教師，並具二年以上之代課或代理教學年資者。

3、具有二年以上之相當工作經驗者，其報考應具之工作經驗年資，由各校自定，錄取人數每班以五人為限，並明定於招生辦法及簡章中。

九、 入學考試方式：

考試項目應依在職生之特色訂定，除筆試外，得兼採口試、術科、實作或書面審查等項目。筆試之考試科目及考題應以專業實務為主；口試、術科、實作或書面審查應包括工作經驗、專業表現、學習知能或相關特殊表現等。

十、 在學學業評量：

授課教師得依課程需要，於教室實地舉行不定期平常考試、期中及期末考試，或以繳交報告、作業方式等，評量學生成績。

十一、本班之學位授予，依學位授予法等相關規定辦理，其畢業證書並應附記授課方式為遠距教學。

十二、學分抵免：

學生前曾修習之數位學習課程，經本部課程認證通過者，如本班開設有相同之數位或實體課程，於認證有效期限內，所修學分得依各校學則或相關規定酌予抵免。

十三、學雜費之收取：

本班學雜費之收取，應由各校衡酌教學成本，依專科以上學校雜費收

取辦法之規定辦理，學雜費中，得酌收數位學習平台使用費，各項收支應符合相關會計作業規定，並於招生簡章內明訂收費基準。

十四、申請程序：

（一）各校應設立統一窗口，指定專責人員負責各系所之申請彙整事宜，並處理核可後與本部相關作業之配合聯繫作業。

（二）申請文件

1、申請表一份、計畫書及自評表各一式七份。

2、所有數位學習課程之認證送審文件及電子檔光碟一式七份。

（三）申請文件繳交方式

以電子檔形式上傳至本部認證中心網站，並備正式公文及前款各目規定文件（含電子檔光碟），於期限內送達本部，逾期送件者不予受理。（送達地址：一〇六臺北市和平東路二段一〇六號十二樓-教育部電算中心，註明「數位學習認證專案」收。）

（四）本班作業時程及申請文件格式，依本部認證中心網站：http://ace.moe.edu.tw 所載辦理。

十五、審查方式：

下列資格審查、專班初審、課程認證審查、專班複審及數位學習認證會確認等五個階段辦理，專班申請審查程序如附圖一；數位學習課程認證審查程序如附圖二：

（一）資格審查

由本部檢視申請學校是否符合申請資格，並核對必備資料表格是否齊全。

（二）專班初審

由本部聘請相關領域之學者專家七人至十一人擔任專班審查委員，以書面或會議方式，就申請計畫書、自評表及相關附件進行個別審查。

（三）課程認證審查

由本部聘請相關領域之學者專家，每科目組成五人認證審查小組，進行審查。

（四）專班複審

由本部召開專班審查小組會議，依公告之領域與班數，以專班初審及課程認證審查結果，作成審查結果建議。

V. 國立大學校院校務基金設置條例

第 1 條　國立大學校院校務基金之設置、收支、保管及運用，依本條例之規定；本條例未規定者，適用其他有關法律之規定。

第 2 條　爲因應高等教育發展趨勢，提昇教育品質，增進教育績效，國立大學校院應設置校務基金。

第 3 條　設置校務基金之學校，其一切收支均應納入基金，依法辦理。

第 4 條　國立大學校院校務基金屬預算法第四條所定之特種基金，編製附屬單位預算。

第 5 條　國立大學校院校務基金之收支、保管及運用應設置管理委員會管理，由校務會議下所設置之經費稽核委員會監督，管理及監督之辦法，由教育部定之。

前項管理委員會置委員七至十五人，由校長任召集人，其中不兼行政職務之教師代表不得少於三分之一，必要時得聘請校外專業人士參與。委員任期兩年，由校長遴選提經校務會議同意後聘任之。

第一項之經費稽核委員會置委員七至十五人，由校務會議成員中推選產生。但其成員不得與校務基金管理委員會之成員重疊。

第 6 條　校務基金之收入來源如下：

一、政府編列預算撥付。

二、學雜費收入。

三、推廣教育收入。

四、建教合作收入。

五、場地設備管理收入。

六、捐贈收入。

七、孳息收入。

八、其他收入。

前項學雜費之收費標準，依教育部之規定；政府編列預算撥付，由教育部

依預算程序辦理。

第 7 條　校務基金之用途如下：

一、教學及學生獎助金支出。

二、研究支出。

三、推廣教育支出。

四、建教合作支出。

五、增置、擴充、改良資產支出。

六、其他與校務發展有關之支出。

第 7-1 條　校務基金之投資項目如下：

一、存放公民營金融機構。

二、購買公債、國庫券或其他短期票券。

三、投資於與校務或研究相關之公司與企業，除以研究成果或技術作價無償取得股權者外，得以捐贈收入作爲投資資金來源。

四、其他具有收益性及安全性，並有助於增進效益之投資。

第 8 條　各校校務基金預算之編製，應審酌基金之財務及預估收支情形，並以維持基金收支平衡或有賸餘爲原則。

第 9 條　校務基金之會計事務，由教育部統一訂定會計制度，供各校據以辦理。

第 10 條　校務基金有關年度預算編製及執行、決算編造，應依預算法、會計法、決算法、審計法及相關法令規定辦理。但捐贈收入、場地設備管理收入、推廣教育收入、建教合作收入及第七條之一投資取得之有關收益不在此限，惟應由各校自行訂定收支管理辦法，並受教育部之監督。

第 11 條　國立專科學校得準用本條例之規定。

第 12 條　本條例自公布日施行。

VI. Income Statement of Chinese Culture University in 2008[62]

單位：元

科目	本學年度預算數	本學年度決算數	上學年度決算數	本學年度決算與本學年度預算比較		本學年度決算與上學年度決算比較	
				差異	%	差異	%
各項收入							
學雜費收入	2,164,940,540	2,171,498,195	2,134,493,228	6,557,655	0.30%	37,004,967	1.73%
推廣教育收入	626,595,640	723,467,258	692,533,032	96,871,618	15.46%	30,934,226	4.47%
建教合作收入	109,000,000	113,505,296	111,031,106	4,505,296	4.13%	2,474,190	2.23%
其他教學活動收入	0	139,556	0	139,556	-	139,556	-
補助及捐贈收入	321,602,871	558,077,923	351,180,888	236,475,052	73.53%	206,897,035	58.91%
附屬機構收益	213,851	0	28	(213,851)	(100.00%)	(28)	(100.00%)
財務收入	86,400,000	79,668,275	107,072,413	(6,731,725)	(7.79%)	(27,404,138)	(25.59%)
其他收入	129,532,870	154,373,521	222,116,747	24,840,651	19.18%	(67,743,226)	(30.50%)
合計	3,438,285,772	3,800,730,024	3,618,427,442	362,444,252	10.54%	182,302,582	5.04%
各項支出							
董事會支出	2,591,000	871,082	806,538	(1,719,918)	(66.38%)	64,544	8.00%
行政管理支出	694,492,396	567,310,342	411,550,198	(127,182,054)	(18.31%)	155,760,144	37.85%
教學研究及訓輔支出	1,957,829,708	1,852,450,190	2,169,037,386	(105,379,518)	(5.38%)	(316,587,196)	(14.60%)
獎助學金支出	197,885,575	231,698,533	230,277,158	33,812,958	17.09%	1,421,375	0.62%
推廣教育支出	716,677,920	571,756,787	506,180,470	(144,921,133)	(20.22%)	65,576,317	12.96%
建教合作支出	105,000,000	107,043,831	102,234,567	2,043,831	1.95%	4,809,264	4.70%
其他教學活動支出	0	139,556	0	139,556	-	139,556	-
附屬機構損失	0	1,101,920	1,113,823	1,101,920	-	(11,903)	(1.07%)
財務支出	3,267,715	2,338,958	3,550,827	(928,757)	(28.42%)	(1,211,869)	(34.13%)

[62] Downloaded from the website of the Chinese Culture University in 2010/1/24

Interview Record

I. Interview Questions

(1). 台灣的高等教育在過去十多年中受到少子化、學校數量倍增、政府財政緊縮以及政府政策調整等因素影響，公私立大學在財政收入上都面臨很大的挑戰。就貴校及貴單位的經驗中，經營上所碰到挑戰是什麼？

(2). 針對第一題所提及的種種挑戰，貴校及貴單位的因應方式是什麼？如何有效地增加學校及各單位的收入？在服務的創新上，有什麼具體的做法嗎？

(3). 為因應環境的變化，貴校的推廣教育在課程創新、學位創新及其他服務方式及產品創新上有那些做法？遇到那些困難？

(4). 承上題，貴校在拓展企業市場，不同消費族群或不同服務地點上有那些具體的作法？遇到那些困難？

(5). 為因應環境的變化，貴校的推廣教育在組織文化、經營理念、部門設計及服務流程中有那些改變？ 遇到那些困難？

(6). 在學校改革及開放的過程中，產業合作及提供企業服務是增加學校收入並提高競爭力的一種方式，請問貴校或貴單位是否有這一類的作法？ 遇到那些困難？

(7). 全球化對台灣的高等教育來說是機會也是挑戰。請問貴校及貴單位是否感受到影響？是否有因應之道？是否有創造新的機會？遇到那些困難

(8). 對近來很重視的開放大陸學歷及陸生來台，您有什麼看法？對貴校及貴單位來說，能夠創造出什麼樣的機會？會有什麼挑戰？對貴校及貴單位來說，進單大陸市場是否是一個選項，有那些機會及挑戰？

(9). E-Learning 是過去十年來發展非常快速的一個領域。請問貴單位對 E-Learning 市場及服務的看法如何？貴單位有那些創新的做法？學生的接受程度如何？對未來的發展是否樂觀？有什麼挑戰？

(10). 是否還有其他在教育服務上的創新及改變？是否還有其他在學校經營上的困難在挑戰？

II. 黃崇興

1. 說明

(1). 受訪者：台灣大學教授。前台大 EMBA 辦公室執行長。前台大進修推廣部主任。

(2). 訪談時間：2010/1/7 08:00 pm

(3). 訪談方式：於台灣大學教授辦公室中進行訪談

2. 訪談內容

(1). 台灣的高等教育在過去十多年中受到少子化、學校數量倍增、政府財政緊縮以及政府政策調整等因素影響，公私立大學在財政收入上都面臨很大的挑戰。就貴校及貴單位的經驗中，經營上所碰到挑戰是什麼？

所有學校都研上政府財政緊縮的問題，但是最主要的問題是會計科目僵化。政府補貼減少，大學要擴展經營又必須更有彈性。舉例來說，有時必要的交際應酬，在規定中不能做爲費用報銷。出國考察時很多活動不能報銷，員工福利無法報，這些都是卡在會計法令上。

一個大學要發展，多方面要投資。目前的法令卻讓我們處處受限，沒有辦法做。舉例來說，學校每年給老師經費買電腦。如果我們不需要用這些錢，剩下的卻不能拿來做出國考察的經費。所以問題不只是錢不夠，而是處處受到限制

(2). 針對第一題所提及的種種挑戰，貴校及貴單位的因應方式是什麼？如何有效地增加學校及各單位的收入？在服務的創新上，有什麼具體的做法嗎？

學校目前的主要經費來源是五項自籌經費[63] – 捐贈收入、場地設備管理收入、推廣教育收入、建教合作收入投資收益。在課程上，台大最早就從計算機中心，語言中心，接下來就是推廣教育中心，企家班、法律班、體育班。在校產的管理上，主要有體育館，溪頭林地等。其實林地的收入也很可觀。另外，國科會計劃，企業委託的專案也有。Donation 不多。台大醫院收入也很高。而私立學校本來拿到的就少。不過公立學校因爲會計制度僵化，所以無法應付需求。

政府另外有在法令在範圍內增加一些學校收入的機會。舉例來說，政府的規定，請學校老師當董監事，要付學校五十萬給學校。

(3). 為因應環境的變化，貴校的推廣教育在課程創新、學位創新及其他服務方式及產品創新上有那些做法？遇到那些困難？

(4). 承上題，貴校在拓展企業市場，不同消費族群或不同服務地點上有那些具體的作法？遇到那些困難？

在課程創新上，台大都從 demand 上來做。例如爲了配合學員需要，把學分班改成精煉班。另外，幫高中生在暑假上先修。進台大後可以抵學分等。

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[63]五項自籌經即國立大學校院校務基金設置條例第 10 條之但書(see appendix V)。國立大學校院校務基金設置條例第 10 條　校務基金有關年度預算編製及執行、決算編造，應依預算法、會計法、決算法、審計法及相關法令規定辦理。但捐贈收入、場地設備管理收入、推廣教育收入、建教合作收入及第七條之一投資取得之有關收益不在此限，惟應由各校自行訂定收支管理辦法，並受教育部之監督。

EMBA 在私立大學是一種新的機會。公立大學誘因不大，我們被嚴格地要求正職教師的人數，另外教育部有授與學位的要求，因此很難突破。而且，另外在台灣如果人收更多，水準就會往下降。不過，EMBA 卻是一個可以增加老師收入的方式，透過上課的補貼，老師們也可以多賺到一些錢。

網路是唯一提供方式的不同。從錄影到互動，台大一直有在嘗試。另外，有試過不同地區開課。李長貴老師開始也有提供企業包班

(5). 為因應環境的變化，貴校的推廣教育在組織文化、經營理念、部門設計及服務流程中有那些改變？ 遇到那些困難？

學校在管理上的困難之一是教授薪資的。當薪資的計算方式是固定的，就很難有激勵作用。舉例來說，學校希望教授接更多的專案，但是不論接多少案子，超過 25000 元都算學校的。台大沒有一個機制，讓老師可以賺到錢. 如果沒有透過學校，接案子，只能變成薪資，很多的支出不能報銷；如果透過學校，就必須要透過會計的管制. 所以老師連坐商務艙都不行。

公立大學沒有辦法做到組織創新。在台灣沒有辦法大量雇用實務教師。在台灣教授資格也有受到嚴格控管。很多學校老師沒有實務經驗，未必能帶給學生更好的教學品質。

台大沒有專職的創新的組織。但是有設立財務長兼任副校長的機制，這就是爲了籌募經費。郭台銘的捐款就算是其中一個成功的例子。

總的來說，學校必須另外成立一個法人機構才有可能突破這些限制。可以有獨立的流程及機制，不受到法令的約束。

(6). **在學校改革及開放的過程中，產業合作及提供企業服務是增加學校收入並提高競爭力的一種方式,請問貴校或貴單位是否有這一類的作法？ 遇到那些困難？**

台大有在考慮，產經合作。幫企業做 consultant。但是實際上，老師個人去就好了。主要的問題還是在誘因上，學校認爲學校的招牌很管用，事實上對老師來講幫不大。學校並不是真的像是一個顧問公司一樣，可以給老師很好的支援。在薪資及費用報銷上又有很多限制。

(7). **全球化對台灣的高等教育來說是機會也是挑戰。請問貴校及貴單位是否感受到影響？是否有因應之道？是否有創造新的機會？遇到那些困難**

台大沒有國際化增加收入的條件。國際化要有自己的飯店，才可能收國際學生。E-learning 對外地工作的人有少數量的機會，但是目前的市場接受程度不高。目前也僅供中文的課程。

(8). **對近來很重視的開放大陸學歷及陸生來台，您有什麼看法？對貴校及貴單位來說,能夠創造出什麼樣的機會？會有什麼挑戰？對貴校及貴單位來說,進單大陸市場是否是一個選項，有那些機會及挑戰？**

學校或許能收到一些學生，但是對國立大學的誘因不大。同時大陸政府的動機及方式又有許多令人擔憂的地方，這才是最大的挑戰。

(9). **E-Learning 是過去十年來發展非常快速的一個領域。請問貴單位對 E-Learning 市場及服務的看法如何？貴單位有那些創新的做法？學生的接受程度如何？對未來的發展是否樂觀？有什麼挑戰？**

E-Learning 怎麼做其實還有很多的問題。E-Learning 目前在台大只有錄。並不

是真的互動教學。沒有在課程上做到應有的創新來達到 e-learning 該有的效果。

(10). 是否還有其他在教育服務上的創新及改變？是否還有其他在學校經營上的困難在挑戰？

台大推廣沒有提供學費的服務創新。學校有一些獎學金，貸款但是沒有太多創新。

III. 呂新科

1. 訪談說明

(1). 文化大學助理教授，現任進修推廣中心執行長。

(2). 電話訪談

(3). 時間: 2010/1/19

2. 訪談內容

(1). 台灣的高等教育在過去十多年中受到少子化、學校數量倍增、政府財政緊縮以及政府政策調整等因素影響，公私立大學在財政收入上都面臨很大的挑戰。就貴校及貴單位的經驗中，經營上所碰到挑戰是什麼？

其實高等教育, 尤其私立大學是最早碰到這個問題, 學雜費又受到政府限制. 也是最早思考這個問題. 做法當然, 一般的學校透過科專與產業結合, 校友及企業捐贈, 通常校友, 除了台大及交大外, 其他的學校都很辛苦. 目前國內有 168 個高等學校是很不常態的狀況. 另外一種方式是推廣終身學習的市場, 也因此也變成近來主要的接二連三, 當然各校也都績極投入, 也就造成嚴重的市

場競爭. 因此, 產業充滿挑戰. 從過去被保護的到這幾年, 完全變成沒有保障.

文化其實不是航空母艦, 其實是聯合艦隊, 跟外人看到不同. 跟金融研訓院, 工總及補教業者重覆, 其實並不是一個很大的主體去跟別人競爭. 所以我們都很多個小單位去跟別人競爭. 外人看起來有四百個人的大團隊, 其實是有很多個小隊, 每一個團隊只有五至七個人。這種 organic 結構事實上是爲了要針對市場所快速的反應，因爲產品的生命週期很短，所以在業務增減之間，就會變成團隊的新增及解散。爲了因應這種環境，所以自然演化成小團隊。第二個原因是爲了讓團隊永遠處於創業的狀態。但是他可以保有一個不斷創造。

(2). 針對第一題所提及的種種挑戰，貴校及貴單位的因應方式是什麼？如何有效地增加學校及各單位的收入？在服務的創新上，有什麼具體的做法嗎？

文大比較特別的地方是很早把教育當作教育服務業，一般台灣的大學不願意把學生當作顧客。學生有義務成爲好學生。但是終身學習的這種回流教育，這種學生比較像是顧客。在管理學校學生及管理顧客的基本觀念及流程規劃上其實是一種新的做法。我們是少數在學校中有 single window 有 call center。這些創新，最主要是因爲我們把教育當作教育服務業。在傳統的學校概念中，只要產品好、reputation 好，學生就會自動上門。在以顧客爲導向的前提下，只有產品是不夠的。知識的商品跟一般商品不同。知識商品是需要透過體驗的。在文化及台大你去花錢買了產品其實是帶不回家的，知識是一種體驗型的商品。你今天如果老師很好，教材很好，但是其他的服務不好、環境不好，光是老師好，學生仍會抱怨。因此，在這樣的市場中，我們必須在這些環節中加入非常多創新。目前陸續有許多的學校開始從文化的身上看到很多創新。成立單一 window，不是只是產生一個單位，而是觀念及整個流程上的改變，因此有很多東西必須跟著創新。我們因此創立了單一櫃台，可是光是單一櫃台仍然不夠，如果學生仍要把問題重述一遍，學生會覺得很不滿，因此我們在資訊的整合上是需要創新，所以你打電話來，或是來櫃台我們都會提供一樣。

(3). 為因應環境的變化，貴校的推廣教育在課程創新、學位創新及其他服務方式及產品創新上有那些做法？遇到那些困難？

在正規的學制的改變上。我們有消費時尚學程，Luxury 的需求；數位設計的學程，未來都是市場的需要；在非正規學制上，就是我們每天的需求。舉例來說，新娘秘書，幸福產業；禮儀師等。我們也開發過狗狗訓練班。現在的人把小孩當寵物養或是寵物當小孩養。

最大的困難是因爲我們是市場的最先端，我們沒有人可以複製。其他學校的人員可以不需要複製。這是我們最大的困擾。開拓所花的精力很大。他投入了三個月研發，這樣的問題是一個最大的問題，讓我們的企劃人員。他只要是擔任課程企劃，所以課程設計人員的薪資就比較高，當然文化在支援上，可以讓員工可以有很好的支援。在文化管理薪資的自由度與跟在台大是差不多。這個結構，是看學校的企圖心。像我們文化四百個員工，只有四十個是有在編制內，所以是差不多的。舉例來說，師大有約聘的執行。

(4). 承上題，貴校在拓展企業市場，不同消費族群或不同服務地點上有那些具體的作法？遇到那些困難？

像銀髮族及幼教本來就在文化的範圍內，基本上只要在可就學的年齡，就有課程。經營模式上，有些是直營的，有些是被委託的。尤其是推廣教育部，因此常規的公務體系，因此，文化有一種新的模式。E-Learning 就是一種新的方式。這個部分在台灣雖然早，但是卻不夠成熟。因爲上課市場已經非常成熟，e-learning 在距離上其實沒有優勢，只有在時間上的優勢。美國在華語教學上有需求，e-learning 就拓展到其他國家去，或是配合政府。

(5). 為因應環境的變化，貴校的推廣教育在組織文化、經營理念、部門設計及服務流程中有那些改變？ 遇到那些困難？

(6). 在學校改革及開放的過程中，產業合作及提供企業服務是增加學校收入並提高競爭力的一種方式，請問貴校或貴單位是否有這一類的作法？ 遇到那些困難？

我們跟產業合作一種是研發移轉。IT 團隊其實很特別，除了做自己的服務外，也接外面產業的案子。第二種是提供訓練。訓練服務，政府及企業都碰到一個問題，如果找到或提升一個對的人，據我的經驗，大型企業是很願意用這種委外的方式。好處，是第一個勞務委外，二有市場機制選擇，三可以找到專家。困難是，在經營上比較被動，容易碰到專業的挑戰。B2B 的部分大概有 1/3。

(7). 全球化對台灣的高等教育來說是機會也是挑戰。請問貴校及貴單位是否感受到影響？是否有因應之道？是否有創造新的機會？遇到那些困難

(8). 對近來很重視的開放大陸學歷及陸生來台，您有什麼看法？對貴校及貴單位來說，能夠創造出什麼樣的機會？會有什麼挑戰？對貴校及貴單位來說，進單大陸市場是否是一個選項，有那些機會及挑戰？

兩岸的發展是不可逆的過程。對我來說，這不是一種選擇。台灣的學校到底招大陸學校比較容易還是外國學校？誰不想招收國外學生? 168 個學校勢必留下只有 100 個學生。很多學校在求學生來讀。甚至招不到 20%的學生。所以現在台灣的高校，必須要往最容易的市場靠近。這其實是一個很短期的做法。台灣與大陸的落差愈來愈少。這個落差在各個方式快速縮小。我今天不可能捨近求遠，我捨棄大陸市場去招歐美。這不是爲了統獨問題，這是生存的問題。我們趁大陸學校還未趕上。

我們透過校際合作，派了很多員工去大陸，目前仍是在練兵的階段。目前政府在這一塊還是保守。一直到 2008 年選舉完了後，才開始練兵。

初期到對岸設校是相對來說困難，比較可能是以推廣教育主導。大陸學生來台是比較容易，不過是正規學制的天下。一個高教系統到大陸，比較可能是做推廣教育，正規學制有比較多的法令困難。因此正規體制強的，可以在台灣等大陸學生來；反之到大陸做推廣教育，必須先在台灣做好。

(9). E-Learning 是過去十年來發展非常快速的一個領域。請問貴單位對 E-Learning 市場及服務的看法如何？貴單位有那些創新的做法？學生的接受程度如何？對未來的發展是否樂觀？有什麼挑戰？

E-learning 還是要回到學習觀念及習慣改變，它可以解決時間、距離及師資平衡的問題。但是學習者的學習觀念其實沒有真的改變，e-learning 的 abort rate 很高。有的人可以，也是有的人不行。所以 learning style 很多不同。E-learning 的需求不是問題，但是不能持續的問題是，學習者沒有辦法改變及適應。這個過程需要一定的時間，如同看報紙及看網路新聞的不同。

(10). 是否還有其他在教育服務上的創新及改變？是否還有其他在學校經營上的困難在挑戰？(例如價格，投資)

大概現在，嚴格講文化在很專注在教育上。我們在努力 e 化，做體質的調整。我們的創新主要在調整的結構。有營運長、品質長、資訊長。由專業經理人來管理。其他的做得就不多了。

Reference

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[i] Sector 61--Educational Services The Sector as a Whole: The Educational Services sector comprises establishments that provide instruction and training in a wide variety of subjects. This instruction and training is provided by specialized establishments, such as schools, colleges, universities, and training centers. These establishments may be privately owned and operated for profit or not for profit, or they may be publicly owned and operated. They may also offer food and/or accommodation services to their students. Educational services are usually delivered by teachers or instructors that explain, tell, demonstrate, supervise, and direct learning. Instruction is imparted in diverse settings, such as educational institutions, the workplace, or the home, and through diverse means, such as correspondence, television, the Internet, or other electronic and distance-learning methods. The training provided by these establishments may include the use of simulators and simulation methods. It can be adapted to the particular needs of the students, for

example sign language can replace verbal language for teaching students with hearing impairments. All industries in the sector share this commonality of process, namely, labor inputs of instructors with the requisite subject matter expertise and teaching ability.