Management Education in the Age of Knowledge Based Economy

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Ⅰ. The Coming of Knowledge Based Economy

How do we position the Korean management education for the 21st Century knowledge based economy? The question can be better answered if we have a clear vision of the economic reality in the millenium. Although we do not have a perfect prediction for the coming century, we have considerable research work on the 21st Century. Of late, these works have been centering on knowledge based economy, knowledge management and knowledge industry. Some observers attribute the causes of the Japanese Economic problem in the last 9 years and the Asian economic crises since July 1997 to the lack of preparation for the knowledge based economy. Others attest the powerful performance of the

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American economy since March 1991 in contrast to the chronic high unemployment rate of the OECD nations as a sign of the degree of adaptation to the knowledge based economy. One of the leading economic newspapers in Korea, Maeil Economic Daily has been staging campaign since 1997 with the motto that the only way out for the Korean economic predicament is knowledge management.

Hal R Varian (1998), a Berkeley economist and business professor expressed the transformation to the knowledge based economy in the U.S.A. when he observed that the driving force of the American economy consisted of ICE, namely information, communication and entertainment. He preferred the term information economy in place of knowledge based economy. The term knowledge based economy is used in this paper because the terms, knowledge based economy, knowledge economy and knowledge management are widely accepted. Many economists including Fritz Matchlap have documented the steady rise of the knowledge workers in the United States since early 20th Century.

In the industrial economy, the service workers are rapidly increasing and they are reclassified into knowledge workers, information workers, and data workers by the information economists.

The term knowledge encompasses wider meanings such as data, information, general technology, information and communication technology (ICT), best business practice and creativity when they are employed to increase economic value, and core competence and competitive edge of a firm. In the forthcoming 21st Century world economy, knowledge is considered to be the single most important factor of production, far dwarfing the traditional production factors such as capital, labor, raw material, and land.

The trend clearly points to a paradigm shift in the field of management, economics, and subsequently in other social sciences at large. In the Thomas Kuhn's paradigm theory, it states that in the history of natural science, when the existing core theory of science suffers anomaly continuously, a low paradigm state would occur. And it is gradually replaced by a new paradigm unifying the

warring small paradigms, and a paradigm shift would take place.

The changing economic behavior of the man in the knowledge economy would have a far-reaching impact on other social sciences as proposed by the advocates of the postindustrial society. They represent diverse areas. They are such as sociologist Daniel Bell, Alvin Toffler, Closier, Yoneji Masuda, and Kyungdong Kim, and political scientists, Zvignew Brezsinsky and Herman Kahn, communication scientist Marshall McLuhan, economists Fritz Machlup KIM, Sewon, Peter Drucker, to name a few. These scholars are often called the futurists, but one of the striking aspects of the concerted effort is that they are from diverse areas of disciplines. And the multifaceted nature of the knowledge based economy, society, and knowledge management requires interdisciplinary approach.

Ⅱ. Interdisciplinary Nature of the Knowledge Based Economy

The age of information and knowledge economy was heralded in 1946 when the first information processing machine, ENIAC, was invented. It immediately drew attentions from many scholars to the magnitude of James Watt's steam engine in the mid 18th century. A multidisciplinary research on the knowledge economy and its impact on many dimensions was presented by Toffler (1980) in his thesis of three major industrial revolutions. His first revolution is based on the agrarian technology some 5,000 to 10,000 years ago. The second revolution is machine based and started some 250 years ago in England. And the third revolution is computer and communication-based which have started some 50 years ago in the United States.

New Technology and Structural Change of the Society: Harvard sociologist Daniel Bell (1973,1976) is widely cited for his concept of postindustrial theory of societal transformation. Unlike Toffler, Bell's technology based societal classification is found in three categories: Pre-industrial, Industrial, and post-industrial societies based on the American experience. Bell's sub category

of post-industrial society consisted of tertiary, quaternary, and quinary, suggesting a qualitative differentiation of the traditional service sector or tertiary industry.

Table 1 General Schemes of Change in the Social and Economic Structure

	PRE-INDUSTRIAL	INDUSTRIAL	POST-INDUSTRIAL
Regions	Asia Africa Latin America	Western Europe Soviet Union Japan	United States
Economic sector	Primary Extractive: Agriculture Mining Finishing Timber	Secondary Goods producing: Manufacturing Processing	Tertiary Quaternary Transportation Trade Utilities Finance Insurance Real estates Quinary Health Education Research Government Rccreation
Occupational slope	Farmer, Miner Fisherman, Unskilled worker	Semi-skilled Engineer	Professional and technical Scientists
Technology	Raw Material	Energy	Information
Design	Game against nature	Game against fabricated nature	Game between persons
Methodology	Common sense Experience	Empiricism Experimentation	Abstract theory: models, Simulation, decision theory, Systems analysis
Time perspective	Orientation to the Past Ad hoc responses	Ad hoc adaptiveness Projections	Future orientation Forecasting
Axial principle	Traditionalism: Land/resource Limitation	Economic growth: State or private Control of investment Decisions	Centrality of and codification of theoretical knowledge

* Daniel Bell (1973, 76) has been modified and quoted in authors in HBR (1979), Teheranian (1987) and Kim, Kyungdong (1998)

The New Technology Impact is Felt in Every Aspect of Social Sciences: McLuhan and Brezezinsky are famous in their study of student revolts in 1960's. They maintained that the changing communication technology, amount of knowledge accumulated, and the mode in which they were communicated and transferred would accompany changing consciousness of the university student population in the United States in the 1960's. McLuhan is famous for his thesis of "media is message itself." Brezezinsky (1970) maintained that the prolonged educational years for the young adults would result in frustration. He also proposed that the key actors of the emerging society would be the technocrats with specialty and electronic infrastructure in his thesis of technotronic society. Masuda (1980) emphasized the emergence of the information society where computer-based economy would promote service sector of the economy, favoring the knowledge workers (scientists, engineers, and some managers) and data workers (secretaries, accountants, and sales persons). In the postindustrial global economies, industrial manufacturing is shifted to low-wage countries, and high-skilled, knowledge-based work grows in the developed and high-wage countries.

According to Drucker (1988), the transformation to the postindustrial society brings with it inherent changes in organizational structure: Authority should rely more on knowledge and competence, not on mere formal positions, and the shape of organizations should become more decentralized as knowledge and information become more widespread throughout.

Information technology would lead to the networked organizations in which groups of professionals come together face-to-face electronically for a short time to accomplish a specific task (e.g., designing a new automobile). Once the tasks is accomplished, the individuals join other task forces. Clerical should be reduced because professionals maintain their own portable offices in the form of laptop and palmtop personal computers connected to powerful global networks. Firms could conceivably operate as virtual organizations, where work is no longer tied to geographic location because knowledge and information can be

delivered anywhere and any time they are needed. In 1998 an estimated 4 million virtual workers were estimated to be working for the firms in America from other parts of the world.

Organizations should look more like ad hocracy Mintzberg once described. Drucker (1988) noted The typical large business 20 years hence will have fewer than half the levels of management of its counterpart today. And no more than a third of the managers of the typical business will be knowledge-based, and organization will be composed largely of specialists, who direct and discipline their own performance through organized feedback from colleagues, customers, and headquarters. For this reason, it will be what I call "an information-based organization". Presently the American firms have 2-4 levels while the Korean firms have 6-8 levels from the traditional 14 levels.

Traditional Economic Theories are Challenged: Many economists maintain that there are problems with the neoclassical economic theories, which had not been questioned in the last 250 years of industrial economy. These economists believe that the old theories are no longer valid to describe the contemporary knowledge economy in the U.S. This is because the major portion of the commodities and services traded in the contemporary global market consist of knowledge and information intensive contents. These knowledge intensive goods and services are going through constant innovation under severe competition. In the knowledge economy, they argue that the traditional factors of production such as land, labor, capital, and even monetary policy are not well functioning as in the industrial economy. The concepts of perfect competition, Adam Smith's invisible hand in the free market, and Shumpeter's storm of innovative destruction, as well as Marxian workers' dictatorship, are not working as in the traditional industrial market.

The market failure based on the traditional economic theories is observed centering on the Phillip's curve and Alfred Marshall's theory of diminishing return. According to the Phillip's curve, the rise of employment would result in the higher wage level and eventual inflation and economic down turn. Yet the

U.S. economy, the first knowledge based economy, has enjoyed uninterrupted boom for the last 103 months since March 1991. As of last April, the unemployment rate was 4.3% and wage increase ratio was 0.2%.

Based on the Marshall's theory, any products or companies that gets ahead in market would eventually run into limitation so that the equilibrium of prices and market share is reached. Stanford economist Brian Arthur (1996) concluded that the Marshall's theory is "almost valid in the bulk-processing and smoke stack economy. But it is not valid in the economy of information and knowledge processing economy of today and tomorrow, where the law of increasing return is valid due to learning effect." MIT economist Robert Thurow (1999) is bolder when he stated that "economic factors such as investment, employment, income, expenditure, and stock price would constitute perpetual motion economy."

Federal Reserve Board economist, Laurence Mayer (1999) was a little cautious when he observed that NAIRU (Non-Accelerating Inflation Rate of Unemployment) without price rise was 5.5% in the past, but it has dropped to 3% today. Some maintain that the low wage hike level is not reflecting the new compensation system of stock option, and others pointed to the bubble effect of the U. S. economy. The FRB vice chairman Librin (1999) attributed the causes of lower wage to the restructuring, innovative management, and ICT (Information and communication technology), which resulted in the labor productivity increase in the U.S. And MIT economist Paul Krugman (1999) proposed that "the current long run economic prosperity in the U. S. is a temporary phenomenon mainly caused by the sudden drop of the international commodity price. If there is slight drop in the unemployment rate, wage hike and inflation will occur." And already we observe some adjustment of interest rate and devaluation of the dollar in the U. S. Yet no economist would deny the fast transformation of the U.S. economy from the industrial to the knowledge based.

Many economists and sociologists observe the rapid increase of knowledge

workers and resulting change in the job and economic structure as well as increasing unemployment rate in the transformation process from the industrial to the knowledge economy. Organizational scientists and management information specialists are interested in improving the productivity of the knowledge industry through transformation of the traditional bureaucratic organizations to the learning organizations, team management, business process reengineering, and many other new forms of organizational change and innovation. The dilemma in the process is the coordination or interdisciplinary endeavor of the organizational psychologists and the experts of management information systems, which is easily said but not easily done.

Management information system is concerned with the application of information technology to increase the effectiveness and efficiency of the organization. The information system is an interdisciplinary area of the traditional disciplines of business management/economics, information technology, and behavioral sciences in the business organization to solve business solution under the volatile world business environment. The globalization and borderless competition has necessitated the amount and quality of knowledge and information processing within the contemporary business organizations. But the problems are with the high walls among the traditional disciplines are the source of problem areas in the rest of the world except in the United States where the tradition of the interdisciplinary approach is the strongest..

In the last several years, increasingly the need for a new perspective called knowledge economy and knowledge management have emerged gathering research efforts from the traditional disciplines of economics, sociology, political sciences, psychology, mass communication, and education. The goal of knowledge management is also concerned with the promotion of the effectiveness of the growing knowledge workers within the business organization. It takes the form of knowledge measurement and new ways of compensation. The effort is also concerned with the question of how to build ICT infrastructure of the knowledge and information procession structure, and behavioral sense-making

structure.

The efforts could have been more effective had it been coordinated and participated by all the traditional disciplines within the organization including the areas of management, R&D, and strategy incorporating ICT. The most difficult areas of interdisciplinary approach are the effort to bridge the wide gap between the traditional science/ engineering and social sciences.

New Technology Impact on the Political Ideology: According to Toffler, the societal transformation of ICT is posing potential threat to the belief of socialism. First, the changing concept of material possession is one of the three pillars of socialism. It believes that the societal evils of poverty and unemployment and fundamental are all caused by the concept of private ownership of the means of production. And socialists have attempted to resolve this problem through cooperative unions, workers' participation in management, and through the experiment of commune, which ultimately resulted in the state ownership of the all property. The efforts resulted in bureaucratization and the huge resultant bureaucracy turned out to be insensitive to customer need, environmental change, innovation, and it made the bureaucrats afraid to face new technology.

Second, the central planning system has been installed to avoid the confusion caused by the market economy and to accelerate technological innovation through downward distribution of the economic resources. Austrian-American libertarian economist Ludwig Von Mises made contribution in the economic liberalism based on the belief in the power of the consumer. He observed that the flow of information is limited in the centrally planned economy as it flows only downward, while the amount of information flow is both horizontal and diagonal in the market economy, where multiple players are involved including producer, consumer.

Third, the socialistic belief is rooted in stereotypical concepts on agriculture and service work, and the socialists have emphasized the high stack industry. It is based on the theory of primitive accumulation of capital. Through such

form of capital accumulation, they attempted to concentrate on the development of the secondary industry. It resulted in lowering the living standard of the farmers at the same time misdirected the economic development towards the anachronistic hardware economy.

However, the three pillars of socialism based on the concept of possession, central planning, and emphasis on manufacturing and mining are all under transformation as the latter part of the 1990's are moving towards knowledge economy spearheaded by the United States.

Ⅲ. The Impact of ICT on the Socio-economic Structure

According to the microeconomics theory of production function, the amount of production is equal on the indifference curve. So that we can increase the input of capital or labor depending on the relative cost of labor. As Q (output quantity) equals A (parameter greater than 0 reflecting the productivity of available technology) by K (capital) by L (labor). The technology includes education, knowledge, and change in technique and technology. The firms can easily alter the output through improvement of technology. The process of globalization and ICT allow the firms to globally allocate the production factors to promote productivity through virtual integration of the firms and drastically downsize the conventional form of organization.

According to the transaction cost theory of microeconomics, the firms can substitute labor by ICT overtime. It also can transform the production function inwardly so that the amount of both capital and labor needed to produce can be reduced. Transaction cost theory states that the firms survive when they can conduct internal transaction cheaper than their external transaction in the marketplace.

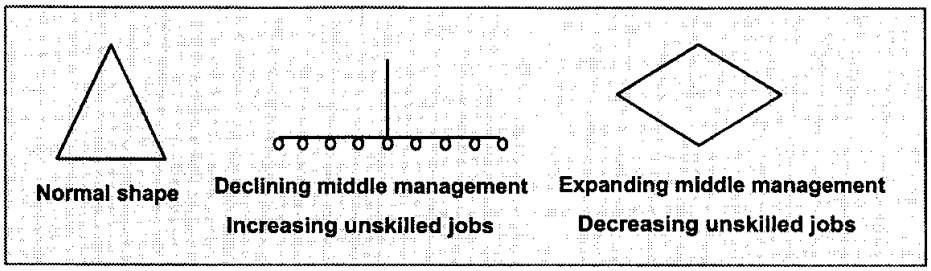
Traditionally, firms have increased the size to reduce internal transaction cost, but ICT enables the firms to reduce internal transaction cost without increasing the firm size. The firm could reduce its size and still can cut down

the transaction cost to maintain the same amount of output. The agency theory of economics views firms as nexus of contracts among various self-interested actors rather than unified profit maximizing entity. As the size of the firm increases, the agency cost would go up due to increasing complexity of the organization. However, through application of ICT, the agency cost too could be lowered.

Although, various economic theories attempt to explain the impact of the ICT on group of firms in general, the theories are weak in describing and predicting the actual behavior of any one particular firm. There come the behavioral theories handy drawing from sociology, psychology, and political science to satisfy the individual questions raised by managers of each firm. According to the research conducted by the behavioral scientists, information systems would not automatically transform organization.

Decision and control theory states that the function of the organization is to make decision under conditions of uncertainty and risk. For that purpose, organizations centralize decision-making and create a hierarchy of decision making to reduce uncertainty and to ensure the organizational survival in the environment. A large number of middle managers are required for that purpose to gather information, analyze it, and pass it up to the top managers. The senior managers require middle managers to implement policies. However, the introduction of ICT makes it possible for the firms to reduce middle manager group and unskilled employees. ICT enables firms to cut down the cost of information acquisition and distribution through networked computer and communication, thus bypassing the rigid and prolonged hierarchy and middle management. As a result, organizational structure can be reshaped from the traditional pyramid shape to an inverted T shape. (Leavitt and Whisler, 1958, Drucker, 1988) According to other study, through empowerment of the middle management, firms can reduce the number of lower-level workers so that the organization can take the form of a diamond shape. (Shore, 1983) which looks more convincing today in view of the rapid increase of the knowledge workers.

Figure 1. Changing Shape of Organizations



Sociologists are interested in the research problems of the power of people, growth of hierarchy, bureaucratic structures, and the standard operating procedures to provide stable and efficient services. The inherent problem of the organization is its inability to change its routines when their environment changes. Managers would reject ICT when it threatens the existing routines and sub-units. ICT does not help survivability of the firms, and given a reasonable time, most organizations fail. New organizations form around new technologies, and they incorporate the new technologies into their standard operating procedures. When these organizations become old, bureaucratic, and brittle, they too disappear.

Organizations are subdivided into functional subgroups such as marketing, accounting, human resources, and production. These functional groups have different values and they compete for scarce resources, resulting in competition and conflict. According to the political theories, information system is an outcome of political competition among organizational subgroups for influence over the policies, procedures, and resources of the organization (Laudon, 1974, 1986, 1998).

Behavioral scientists including sociologists, political scientists, economists, and management scholars are gathering under the banner of postindustrial theory and knowledge economy. According to the behavioral theories, the transformation to a postindustrial society brings with it inherent changes in the organization and economic structures. Authority should rely more on knowledge and competence, and not on mere formal position: The shape of organization

should flatten because professionals tend to be self-managed, and decision making should become more decentralized as knowledge and information become widespread throughout the organization.

Economists and sociologists are also concerned with change in the economic structure, work itself, and income distribution. Manufacturing and agricultural sectors are quickly replaced by the growing service sector. There are transformation of the service sector: The traditional service or clerical workers are becoming data workers, information workers, and knowledge workers, or they face setback in the turbulent global environment as the recent Asian economic setback

Herbert I. Schiller of Department of Communication at University of California at San Diego expressed his concern over the possible dependency of the culturally weaker nations by the culturally stronger nations in the knowledge economy. Cheungshi, Ahn Department of Communication at Seoul National University expressed the expansion of political democratization as ICT is propagated, while James Larson, visiting professor at Yonsei University, felt that the public participation in the foreign policy making process increased with the expansion of the ICT infrastructure. And A.W. Bronscomb, an American attorney, expressed that a new set of legal regime would emerge in the changing social relationship among people, organizations, and the states. (1988).

In the United States, increasingly the management information systems area is putting emphases on the interdisciplinary approach of the organizational information systems and behavioral science to enhance business solution in the globalized competitive environment. And the effort is evolved into a new area of knowledge management. Reflecting such trend, Laudon et al (1998) emphasized the key areas for MIS are economics, management, and behavioral science in addition to information technology. However such organic view of the world in the interdisciplinary approach is not successfully carried out outside of the United States due to the age long impact of the machine model of

organization of the old continent.

The key areas of management information system are executive support systems, management information systems, decision support systems, knowledge work information systems, office automation systems, and transaction processing systems. These systems are functionally divided in traditional 1) sales/ marketing, 2) manufacturing 3) finance, 4) accounting, and 5) human resources. And it is generally observed that the systems in middle level systems and lower levels are fairly well established in the Korean firms, but the strategic level and knowledge level systems are relatively weak as compared to the American firms, indicating relative disadvantage of the competitive potentials.

Research, development, and innovation management are increasingly becoming strategically important areas of attention of ICT applications in the knowledge management. Generally it is taken as matter of course for the ICT usage, but it does not mean that the senior managers could overlook the areas.

ICT impact on job and labor structure: The Bureau of Labor Statistics(BLS), U.S. Federal Government predicted in 1985 that the primary industry would employ 3-5%, the secondary industry would employ 10-20%, and the tertiary industry would absorb remaining bulk of 70-90% of the economically active population. It has been well documented that the primary industry would employ some 90% of the national human resources in the agrarian economy. The secondary industry would employ over 33% of the economically active labor force in the industrial economy. And it has been predicted that the majority of the human resources shall be working in the tertiary industry in the information and/or knowledge economy. Also in 1985 BLS, also made prediction that 1.6 million jobs should disappear and 1.7million new jobs should be created centering around computer and communication technology, high-tech, and knowledge industry. The recent development in the United States witnesses the accuracy of the aforementioned prediction. The unprecedented boom of the US economy in the latter part of

1990's clearly shows the preparedness of the American academics, businessmen, workers, and the governmental policy makers based on the BLS prediction. It is obvious from these statistics and projection based on the empirical data that the three major actors of the national economy namely, the government, business, and the household (labor force) all have to make rapid transformation for the impending transition.

But only in the United States and the English-speaking countries such as England, Finland, Norway, Bangalore, and Singapore have made some tangible adjustment of the governments, enterprises, and workers. For example, in 1996, according to political economist Neef (1997) 75% of the total economically active population in the United States can be classified as knowledge workers, but Laudon et al.(1998) employing more restrict standard, 60% as knowledge workers. But both agreed that the knowledge workers accomplished the 80% of GNP growth in the United States.

Income Gap: Chronic and massive unemployment in the advanced industrial nations such as EU, Japan, and the United States is considered to be another dark side of the transition from the industrial economy into the knowledge economy. The total numbers of unemployment in the OECD countries were 35 million, in addition to 15 million disappointed workers who had stopped seeing jobs, and similar number of imperfect employment adding up to a total of 60 million workers in 1995. But the unemployment rate has improved to the 10-12% level of 19 million in the 1998. In the United States, 42 million unemployment workers had accrued, but more than 26.3 million workers were re-employed in the low paying jobs between 1978 and 1992. As a result, there were 8.7 million unemployment, 6 million imperfect employment, and nearly 1 million disappointed workers stopped seeking jobs in the United States.

However, in 1950's to 1970's most futurists had been optimistic about the employment problem, but many scholars had been pessimistic from 1970's and on with the theme that the human works shall be taken over by the robots, (Jeremy Rifkin, The End of Work, 1994/96). The postindustrial theorists and

advocates of knowledge economy outside of the United States are concerned with the widening income gap between the knowledge workers and non-knowledge workers, and the gap between first rate knowledge worker region (i.e. USA) and the second (EC) or third rate knowledge worker region (developing economy). The 20:80 formula originally submitted to President Bill Clinton in 1995 in the Presidential Commission Report and later adopted by OECD report to warn the EC nations that chronic unemployment in the EC countries in recent years are not temporal but more structural. Hans-Peter Martin and Harold Schumann (1997) expanded the 20:80 formula and maintained that out of 4 billion work force of the free market economy, only 800 millions shall enjoy stable employment and 80% of the total wealth.

A new development has been developing in the United States, recently, according to Business Week (Aug. 24-31, 1998) special double volume issue on the 21st Century Economy centering on the American economic booms of the recent years. Harvard Economist Claudia Goldin observed that "[There is] a constant race between technology and education. At times, education is ahead, and sometimes, the technology cure is ahead." And it is the excellence of the American educational system as well as the attitude of "the working and middle class Americans who reacted to the high-tech boom by getting training so that they can prosper in the years to come." For example 49% of high school graduate went to college in 1979, but the proportion went up to 67% last year.

In other words, the United States has been enjoying economic boom since March 1991 and this year the United States recorded an astonishing full employment of 4.3% unemployment rate. America too is not an exception in the worldwide recession and financial/foreign exchange crises from Asia, Latin America and Russia in the globally inter-linked economy today. But there is no denial that the U.S. is ahead of all the developed economy in the knowledge economy and has set a standard of policy direction in the new knowledge economy environment.

It is obvious from the American case that the problems of the worldwide

income gap and chronic unemployment can be overcome in the age of knowledge economy centering on the educational reform, change and flexibility of every economic actors including government, enterprises and the household for the new situation. What lesson can we deduce from the American educational system? And what direction should the educational reform take in our part of the world? What we can deduce from the development that the key issue of the knowledge economy is to transform the traditional service and manual workers into knowledge workers and data workers. This is one of the best ways to increase the labor productivity, and we cannot think of any better way of surviving in the borderless competition of the global magnitude.

Ⅳ. Strength of the American Social Science and Management Education

Everybody would think of William James and John Dewey as the principal architect of the American educational system. It is generally accepted view that the American universities' academic levels were no comparison to the Western European counterparts in history, tradition, and academic achievement or by any other standard before the World War II. But during the World War II, a miracle happened and the American universities transformed themselves into the world's top class in almost every fields: Not only in the pure science, engineering agriculture, and medicine but also in social sciences and their application in management too. The Western Europeans and the Asian academics have not accepted the fact, and still many don't. But, of late, some European, Japanese, and Korean universities have started to teach social psychology and behavioral sciences, the unique American inventions.

What is unique about the social psychology and behavioral science as one of distinctive characteristics of the American University education? Early social psychology in America has been influenced by the English and German sociology before the World War II. And it is a niche field between sociology and

psychology requiring a coordinated research between two separate disciplines. And together with its kin brother, educational psychology, social psychology has drastically incorporated methodologies of natural sciences. To this fact still many of the European, Japanese, and the Korean social scientists have resistance and/or handicap to fully appreciate the strength of the American social sciences. Such approach of wider horizon of the social science has been extended to other social science field at large in America during the War through the massive research project called, "The American Soldier" under the leadership of Frederick Osborn, side by side the Manhattan Project. The project was evolved into the foundation of the behavioral science movement or interdisciplinary approach of social sciences and that tradition is still carried out by many newly emerging field of sciences both social and natural as well as in the evolution of traditional disciplines.

Interdisciplinary Tradition of the American Social Science Education: It is well known that interdisciplinary approach in social sciences started in the United States during the World War II when both the American scholars and the German fled Jewish scientists combined their efforts in the famous collection of books titled "the American Soldiers." The word "Behavioral Science" appeared formally in the Behavioral Science Division of the Ford Foundation and the Center for advanced Study in the Behavioral Sciences at Palo Alto, California, after the war. They specifically pointed to psychology, sociology, and anthropology as central to the behavioral sciences but noted that not everything in those disciplines. And portion of biological sciences along with portion of economic and political science were germane. The central theme is the multidisciplinary character of human behavior. The approach is also noted for the emphasis on hard methods.

The influence of behavioral science is particularly strong in the fields of organizational studies, marketing of management, political science, mass communication and education in America. They emphasize empiricism, rigorous methodology, and operationalism in an effort to observe and infer reality clearly

and precisely. The philosophy of behavioral science is rather simple. Many sub-disciplines of social sciences are dealing with same social phenomenon called social reality, yet they have built up huge walls between disciplines and have developed different languages in their fields. Therefore the fields have became a "*Tower of Babel*", to state in the biblical term, and thus lost the golden chance of mutual nourishment. The movement started with optimism in parallel with the proliferation of the general systems theory, which came from biology and thermodynamics in the physics and the Encyclopedia of Unified Science published by the University of Chicago Press in 1962.

However, the need and ideal for the multidisciplinary approach, when put into practice are always followed by problems. The maturity and balance of each engaged specializing discipline is not always satisfactory. When a scholar is trained, he is usually leaned to one specialization. When two or three scholars with different specialization meet, they usually lower their intellectual maturity in order to gain understanding of the colleagues in the joint interdisciplinary research projects. And it is not easy to maintain high level of sophistication in the collaborated effort. It is the goal of the multidisciplinary approach to describe, understand, and explain multidisciplinary nature of human behavior or social reality on their own right overcoming the constraints of separated traditional disciplines.

And this approach must be separated from the traditional symposium approach, where multiple aspect of an issue or problem are addressed from multiple disciplines, but there is a bowl of salad and not a melting pot of synthesis in the Hegelian dialectics through the interaction of thesis and antithesis. There is a superficial and general touch of the subjects rather than an in depth interaction between two or more disciplines into a new scientific and intellectual breakthrough.

The forerunner of contemporary multidisciplinary approach is Renaissance man such as Leonardo da Vinci who was painter, architect, sculpture, and inventor. At least we can trace his painting influenced by his knowledge of

geometry, and his sculpture influenced by his human body anatomy. Harvard sociologist Daniel Bell asserted that da Vinci is an ideal model of Western intellectualism, in the sense that an intellectual is abreast of every known knowledge and the same time endeavor to put the knowledge into practice in the form of engineering. One example of the successful contemporary inter-disciplinarian is Herbert Simon in his decision making theory criticizing the traditional economic model of Homo economicus. Simon criticized the concept of rationalism, the very foundation of the traditional discipline of economics. Because it is implicitly or explicitly based on the assumption of omnipresence, which is practically impossible for the actors of economics because they are operating under the constraints of both time and money of learning and information gathering in the market place. Instead Simon offered the concept of bounded rationality of the economic actors, who would limit or 'satisfy' both learning and information gathering in the market place.

Simon's decision-making theory was published in 1947, but economists only recognized it in 1978 in the form of Nobel Prize in economics. Simon blended motivation theory and learning theory from psychology with both information theory and economics in the epoch making contribution in economics and management. Other example of interdisciplinary approach is found in the classical achievement titled "The Social Psychology of Organizations" by Daniel Katz and Robert L. Kahn (1966, 1978). The book is a landmark in the field of organizational and industrial psychology, or simply called organizational behavior. The field is firmly established owing to their efforts. In the book, both authors incorporated general systems theory from physics and biology, at the same time, role theory from sociology, psychology, and cultural anthropology and management. The authors also drew concepts form psychoanalysis, economics, and political science and political economy in establishing the field of behavioral science of organizations.

Flexibility of the American Management Educational: The influences of the interdisciplinary tradition and pragmatism on the American management

education are found in the case study approach and in behavioral science in the management. The behavioral science tradition in the management education and research is strong in human resources management and marketing. And it is a common phenomenon to appoint faculty members with degrees from non-management background, but that is very rare in other parts of the world.

In early 1990's when American MBA programs were under attack for not providing good education in late 80's. And a university in Tennessee started a new program, in which a student would sign up for a course to take lectures from 13 different professors, and the student was expected to consolidate the different fields all by himself. (Personal communication with Dr. Fred Luthans in a Canadian Conference in 1992.) With the advent of ICT, it was American universities that have started courses of MIS with faculty members fully versed in economics, management, psychology, sociology, and political science, as well as ICT. In contrast, the similar department in Korea is isolated from the rest of the management disciplines in most cases. And an MIS program smacks of a pseudo computer science program.

Of late, one can find several courses in entrepreneurship in the under-graduate business programs - 3 to 5 are core courses and several others are elective courses in the American colleges and universities. It requires legal, marketing, management as well as technological knowledge, simultaneously to starting a new business. And ICT requires coordination among colleges of business, engineering, arts and science, and law, as well as input from the practical working experience, mostly from the experience of in-house business incubator in many campuses. Faculty members' active consulting experience, businessmen participation in classes as case providers, and special lectures are also examples of inputs. Such pragmatism and interdisciplinary readiness make the American business education flexible and make American workers and managers demonstrate high adaptability in the age of knowledge economy.

Interdisciplinary Research in Korea: The background and achievements of interdisciplinary approach done in the United States are points of benchmark.

And the background and present status of interdisciplinary research done in Korea can be compared with the results found in the United States. To simply put it, there is no successful interdisciplinary research done under the academic leadership, but examples of interdisciplinary research are found under the governmental policy need. And the outcomes of the governmental initiative is insignificant as compared to the cases found in the United States. Why is that so? In order to get an answer to this question, a sketch of the history is in order

Values and History of the Korean Intellectuals: Korea has adopted Chutze school (朱子學派) of Confucianism rigorously for some 800 years since the era of King Kwangchong of Koryo Dynasty and the Chinese Court examination system to select scholar-government officials. The impact on the history on the Korean mentality and culture is very great because, Korea is the only country in the world, where the scholars are always superior to the military. The military has traditionally been discriminated, and they severely revolted against the scholar-government officials during the latter 200 years of Mongolian invasion, and during the Park Chung Hee's and Chun Doo Hwan's reaction against the scholar/civilian government under perceived or real crises.

Such tradition has made the Korean scholars more inward-looking, fundamentalistic, dogmatic/centripetal and idealistic than realistic, the other extreme pole of the American tradition of pragmatism. In the American "Honne" of "whatever works is good," there are chances of temporary cease-fire and compromise. But in the Korean "Honne," "the fundamental principle is more important and it is the ultimate umpire." There are more chances of dispute and breakdown of the established compromise.

The Korean Confucian scholar/civil servant heritage has shaped the dominant culture and civilization of Korea for the last 800 years, emphasizing abstract humanities rather than practical science such as social sciences and/or commerce. Despite the predominant influx of the Euro-American arts and sciences since the turn of the century, the Confucian scholars taking the court

examination for the civil servant have been sustained in new form. For example, the most desirable form of profession is still government officials or politicians in the mentality of the average Koreans today. As a result, great number of students prepare for government employment or lawyer qualification examinations several years after university graduation among the top class universities in Seoul. This phenomenon is contrasted to the Silicon Valley and high tech venture capitals near the ivy league schools in the United States. The metaphysical tradition of the Korean intellectuals is detrimental to natural evolution of the interdisciplinary research projects.

Cases of Korean Interdisciplinary Research Projects

Saemaul Project: President Park Chung Hee successfully mobilized both tangible and intangible resources to pull out the New Village Movement in 1970's. He encouraged every university and colleges in Korea to organize research institutes to conduct multidisciplinary research on the New Village Movement by providing research fund. Many scholars from the fields of economics, management, political science, etc., participated in the research program and interacted with other disciplines in academic conventions. But the efforts have additive results but rarely interaction results in the true spirit of the interdisciplinary research projects. Besides, the projects were more geared toward soothing and convincing the ever disbelieving and discontented intellectuals.

Information Society Project: President Chun Doo Hwan pulled out the 88 Seoul Olympic Game projects and the campaign to redirect Korean economic base from high stack industries to information technology orientation. In the effort, he sponsored numerous interdisciplinary research projects, mostly with economists and scientists. Nominal support was given to the social scientists and the efforts had some income distribution effect as well as obtaining sound policy evaluation and feasibility study flavor, but not much toward the academic and scientific progress.

In early 1990's, President Kim Young Sam had been pursuing his two missions: the political modernization of Korea and the globalization of Korea. For his goal of globalization, he sponsored many interdisciplinary research projects. In the effort, he recruited some social scientists but without much tangible result. Why didn't these projects result in enrichment of the Korean academia as in the case of the United States? Fundamentalists' cultural tradition as well as the "legitimacy of the past governments" had been cited as principle causes.

Globalization and New Nation Building Projects: The Kim Young Sam government had enjoyed "legitimacy" and high popularity for most of his rule. But the globalization project did not yield into much productive fruit. President Kim Dae-Jung is initiating a new interdisciplinary project titled "New Nation Building." Would this project bloom into the mature level of American interdisciplinary research projects? We still have to wait for the outcomes, but at least, we have reasons to be cautious on being too optimistic.

Some argue that the source of the initiative has not come from the academicians but from the policy need. This is a case of misguided puritanism. Secondly, the sub-culture of the Korean scholars has been traditionally more centripetal or inward looking than centrifugal or outward looking from his narrow major area compared to the tradition of the American academic tradition. The author has proposed that the dominant Korean culture is a power-oriented behavior: so scholarship is not a terminal value but an instrumental value in the Korean Confucian heritage, while the content is emotive and ethically fundamentalistic. (1992-1999)

Some representative examples of scholarly led interdisciplinary research projects are raised here to illustrate the case:

Research on the Student Activism: The Korean student activism dates back to the Royal Confucian University of the Koryo Dynasty Kuk Ja Gam (國子監, 992 AD) and Yi Dynasty Sung Kyun Kwan (成均館, 1397 AD). The two contemporary student uprisings are March 1 Independence Movement against

the Japanese Colonialism in 1919 and the April 19 Student Uprising against the Syngman Rhee dictatorship in 1960. The decade of 1960's was a period of student unrest in most of the Western world. However, the Korean University campuses have been constantly harassed by student unrest of one sort or other since 1960's to date.

In the 60's and '70's, student activism demanded more campus power and democracy. The trend continued throughout '80''s and into the '90's. And the student activism has increasingly adopted progressive flavor of one sort or other. The phenomenon certainly requires interdisciplinary research and most of the Korean colleges and universities have a student guidance center. But the professors from the department of education dominate the centers and they tend to treat student activists as problem child or social deviants. The problems are rarely treated in interdisciplinary manner among sociologists, psychologists, psychoanalysts, economists, political scientists, and futurists as was the case in the U. S. during the '60's.

Business Reengineering Fad: Both business and computer scientists have been engaged in the fever of reengineering in the last few years. The goal is simple. Harness the businessman with the advanced ICT to increase productivity and international competitiveness. The success rate was about 30% in the U.S., but the success rate is only about 10%. And now the disillusioned Korean businessmen are seeking behavioral solution of team management and learning organization. Why is this so? The Americans approached the issue in the interdisciplinary manner between information technology specialists and the behavioral scientists, but the Koreans addressed the issue solely with the specialists in the information technology or only in the organizational specialists.

Knowledge Management Campaign: Recently President Kim Dae-Jung has been endorsing Maeil Economic Daily's campaign for the "knowledge management," which is actively participated by the specialists of management information systems, and computer science but by a few specialists of

organization, behavioral science, and management at large. By and large the Korean academia has not participated most of the government initiated projects whole heartedly due to ethical and political reasons.

V. Benchmark the American Managers for the Korean Management Education Reform

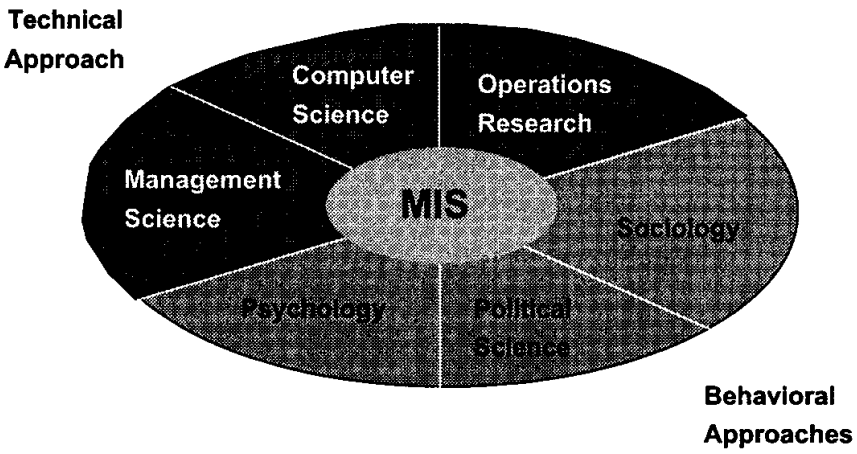
Organic Knowledge Workers versus Mechanistic Knowledge Workers: A careful examination of the cases of managerial and organizational innovation taking place in the American corporations centering on ICT reveals an important aspect separating the American managers from the rest of the managers in the western Europe, Japan, and Korea. The American managers are fully aware of the economic potentials of ICT and its organizational impact. The group of knowledge include internal and external politics and relevant technology, so that they can realistically fuse the relevant group of knowledge in any creative ways to cut down cost and improve revenue drastically in a speedy manner, i.e., Citybank, CNN, Amazon, AOL, Microsoft, American Airline, Wal-Mart, Catalog Site, FedEx, Levi Straus, Baxter, CISCO, IBM, Spillberg Inc., and Disney World.

In other words, the American knowledge workers and knowledge managers are flexible interdisciplinarians, the fittest in the 21st Century type organic organization. On the other hand, the managers and inflexible specialists are found in the rest of the world including South Korea, who are inflexible single area specialists suitable only in the mid 20th type of mechanistic organization.

How come the much needed 21st Century type of flexible knowledge workers are mostly coming from the United States? The answer is found in the American university tradition especially in the graduate schools as discussed in the previous chapter. Among many examples, a case of the American approach of management information systems (MIS) is in order because the approach represents an example of a unique American way. Laudon et al. (1998)

emphasized that the MIS experts should have a wider area of knowledge including not only ICT but also the quantitative management plus several behavioral science areas such as psychology, sociology, and political science/ political economy in the following diagram.

Figure 2. Interdisciplinary Approach of Management Information Systems in the U. S.



This approach brings with it an embedded problem. The technical and quantitative area can have a relatively clear cut conclusion quickly. However, the fuzzy area of behavioral science cannot have a ready or easy solution, and even if it does, it is inconclusive and temporary, requiring further and sustained adjustment. It should be followed by expertises of both technical knowledge and behavioral knowledge. It dictates the managers to have a deep understanding of the areas which are diametrically different but press the need for coordination. They require an understanding and patience to learn from each other. The process is difficult and time consuming and having no perfect answer.

In contrast, the situation seems to be running towards the opposite end from the American cases. On top of that, both the Korean firms and the Korean academia do not have a rich stock of accumulated knowledge on the Korean

organization, unlike the American firms and American academia. And the inflexible single area specialist such as the Korean MIS technicians, who lack the much needed behavioral science and business/management, would tackle the Korean firms' MIS single-handedly. The process is doomed to be a costly failure. A coordinated or interdisciplinary process is time consuming, costly and mutual learning process as shown in the following figure. But there is no shortcut, and this aspect must be fully understood both by the technical specialists and the top managers of the firms.

The coordinated or interdisciplinary process will certainly lead to the handshaking the left and right hemispheres of the human brain at an individual level. The left hemisphere of brain is more rational, calculative, and empirical/scientific, and the right brain is more artistic, intuitive and apperceptive in the split brain psychology. The right and left brain coordination is critical in the organizational learning process in terms of systematic approach or interdisciplinary individual. It is assumed naturally that the coordination would lead into a creative process as through the mutual stimulus and arousal process.

However, intra personal and interpersonal coordination has a built-in problem in the Korean educational system and societal system, and perhaps the case is similar in the traditional industrial countries. The intellectual separation has long been a tradition of the industrial economy in terms of division of labor, and it is built in the system and educational process as seen in the secondary education of technical/ engineering mathematics and humanities and social science mathematics in Korean secondary educational system. Such system presented no problem in the traditional industrial economy, and perhaps some efficiency in the mechanistic organizational solidarity, but would suggest a grave diseconomy in the organic solidarity of the knowledge based organization and industry.

And it is the American educational history and tradition system that has a favorable climate to provide the education and training of the flexible

specialists, the interdisciplinary knowledge workers of 21st Century type. Just think of the long term consequences of the traditional inflexible single area specialist. Half of his brain has long been abandoned and undercultivated since secondary school on! And its aftermath in the smooth transition from the traditional industrial economy to the knowledge based economy! And yet we often hear the frequent complaints from the MIS specialists, "the Korean managers do not have the computer mind" and the like from the multimedia specialists "give us the contents." For example, the Korean cartoonists are outsourced by the Hollywood and the Japanese cartoon industry on a considerable scale, yet the Korean cartoonists' value contribution is estimated to be between 5-10%. While the American and the Japanese cartoonists contribute value up to 90% or more, with their extra knowledge of market, management, scientific and ICT including photographic effect, fine arts, literature, folklore, mythology, and other relevant knowledge obtained from rich and wider reading and learning. The difference comes from the interdisciplinary cartoonists, who have their own "contents" or "knowledge", and the cartoonists, who do not have the added "content" or "knowledge," other than a simple skill to draw traditional cartoon frames. It is heartwarming to get a recent news on the Korean Broadcasting Corporation successfully exporting their own cartoons to other countries for the first time.

Case History of the Educational Korean University Reform: Under the Kim Young Sam administration, in 1995, a new university education reform program has started to increase interdisciplinary program at the same time to combat the high walls among departments rank ordered in terms of power and wealth potential. According to the educational reform plan, many subdivided departments are merged into a fewer larger departments. Students can change his or her major field after completing two years of university education and can get dual bachelor degrees. There are no longer required courses, and all courses have become elective courses, as a result students favor courses with easy grades. Both students and professors have lost departmental loyalty, and

both are discontent. The philosophy behind the reform is to improve the tradition of major areas becoming a new standard of class discrimination and to promote competition among courses. And the result is lowering the academic standards as the students tend to elect easier courses. Now, many universities are regressing to the old system.

University entrance examination has become more of social class determiner discouraging fair competition. And after acquiring the status or societal hierarchy ranking, students suddenly lose interest in study, to an extent that businessmen favor junior college graduates more than the four-year college graduates. This is simply because there are not much difference between the two in terms of the amount of education received. Large firms also employ graduates of the top-level university, not because of the competence, but more for the sake of governmental lobbying. Many large firms have their own educational or training program due to their mistrust of the university educational quality.

With such outside pressure, but more because of the government-led university evaluation program, which certainly hurts the important face of the universities, many universities are exerting their efforts to improve their competitiveness. But the business firms have already moved towards the mass production of interdisciplinarian. Presently over 60% of the top managers are reported to have engineering, science, and management education background in the large corporations of Korea. Yet the middle managers levels are more filled by law and economic majors instead of management majors, who are suspected to be employed for the governmental lobbying purposes.

In 1997, the Presidential 21st Century Committee has proposed that the high-ranking officials of the government, too, must follow the trend of the business world. A few large corporations in Korea operate their own MBA programs in cooperation with the American universities, where the managers are getting a part of the program in their in-house educational facilities some over the satellite and a part in the U.S. campuses. Samsung Electronics and many firms are sponsoring joint MBA-MS-MIS degree course of the Korea

Advanced Institute of Science and Technology. Would this trend have favorable impact on the atmosphere of interdisciplinary research? So far we hear informal problem such as students feeling uncomfortable in the inter disciplinary nature of the program. And both faculty and students complain that no matter how many statistics course they take, students are still at a lost as to application because the statistics faculty members are not familiar with the statistical methods in the research situation.

The Korean universities have long been required by the Ministry of Education to apply strict grading system and strict faculty evaluation program, but they have all failed due to the strong egalitarian and community building cultural resistance. Any attempt to bring about competition, the Anglo-American culture is not likely to succeed in the Korean university culture, despite the fact that most faculty members are exposed to the American university culture except in the universities created based on the American university culture in KAIST and Pohang University of science and technology from the beginning. It seems that the traditional organizational culture has a strong force to overrule the incremental induction of the rational culture except the two competitive universities, that have been built on the new organizational culture. The case with the Brain Korea for the 21st Century or BK21 of the government has faced such a resistance and resentment from the universities that the plan has been forced to be modified to the extend that the program in the humanities and social science have lost the sense of direction.

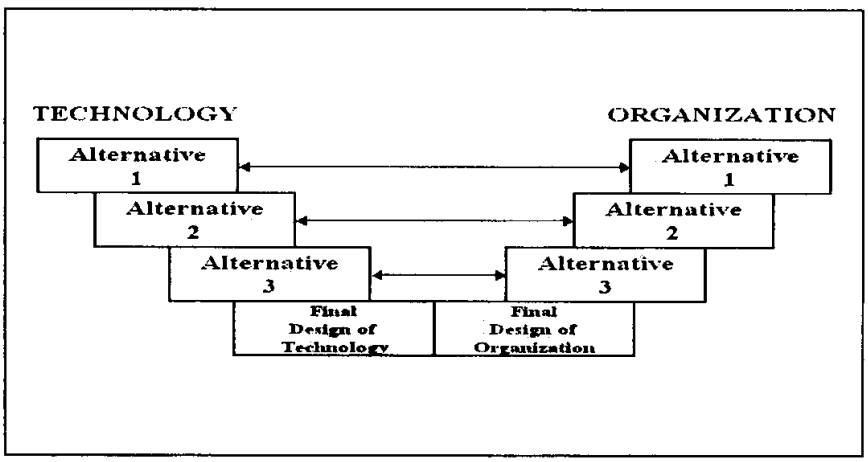
Knowledge economy and management require both enhanced quality of university level education centering on management. It requires interdisciplinary education, but it is easily said than carried out because it has to resolve deeply rooted delicately wove in problems in the system, history, culture, tradition, and resource scarcity. For example, traditionally the areas of humanities and social science are poorly trained in scientific and qualitative approach from high school education on. The Korean educational system has been influenced by the European/Japanese educational systems, and also the

science area has been poorly educated in humanities and social science in general. The Korean version of the European/ Japanese system is too conservative to quickly manage renovation autonomously. For during the development stage of the tradition, societal change rate had been slow in the industrial economy. To correct the problem, we have to rewrite textbook, retrain or replace many faculty members. The Korean universities have adopted faculty evaluation program to enhance competitive posture of the change resisting faculty members centering on the quality and quantity of research. But it becomes many times only nominal so far.

Ⅵ. A Proposal for the Korean Management Education Reform

The reform of the university education centering on the management education must set a clear goal of the education to prepare the economy of knowledge. The knowledge based economy requires flexibility of the government, universities, firms and the household/workers. And it should be spearheaded by the universities educational reform with the aim to convert the faculty members themselves into interdisciplinarians, the flexible specialists and the knowledge

Figure 3. Step by Step Mutual Learning Process of an Interdisciplinary Approach



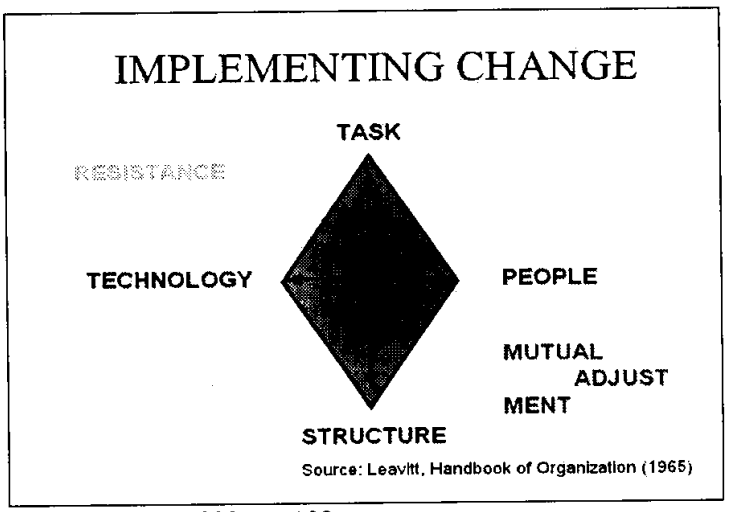
Laudon et al., 1998. P16.

workers. And the initiative could be translated to the transformation of education, students, and the managers. A heuristic model of an inter-disciplinary approach is shown below.

Among the post industrialists and advocates of the knowledge economy, cultural anthropologists assert that ICT must fit into the organization's culture or is not likely to be adopted. In other words, there must be a congruent values set for the smooth transition from the industrial economy into the knowledge economy. The theory provides a plausible explanation for the recent economic predicament of Korea. In the Korean business organization the lower management and middle management have adopted the information system. But unlike the cases in the United States, the senior managers in the Korean firms have not adopted ICT properly. As a result, the Booz Allen and Hamilton Report diagnosed the Korean firms that they lacked the knowledge in their management. This problem must be addressed.

A according to behavioral science research, ICT may result in sub-optimization but does not lead into synergy effect of the total organization automatically. And it may result in simple surge of organizational cost, rather than benefit, especially

Figure 4. Difficult Adjustment of Four Major Areas in a Successful System Integration



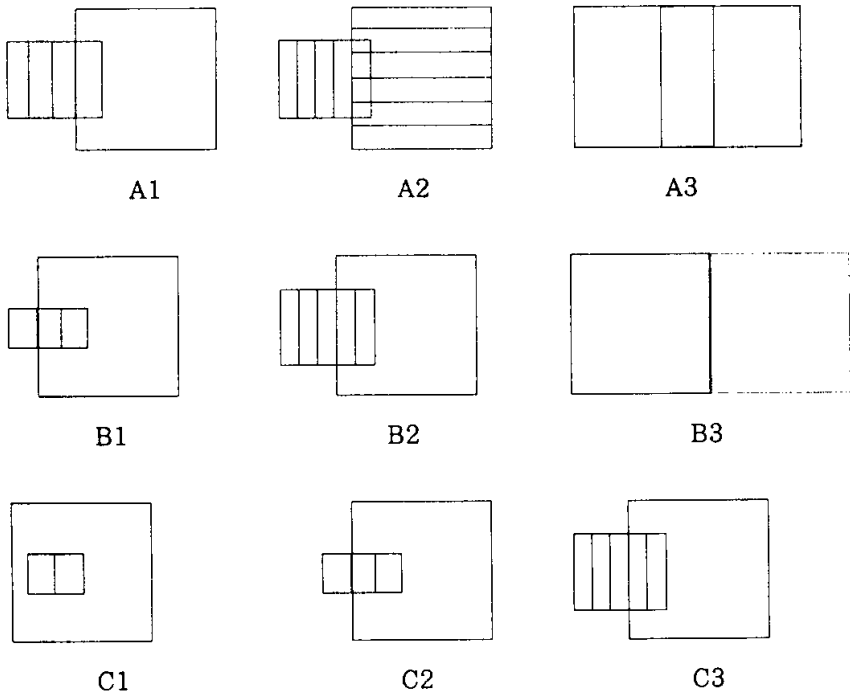
Laudon et al., 1998, p. 103.

when information system is installed without the consideration of successful information systems as and interplay of people, structure, task, and technology.

English Language as a Strategic Asset: Finally a proposal is made to transform some 50% of the business/economic and science/engineering education into the English language speaking programs at university and college level in our part of the world. The students would be trained to be coordinated bilingual not coordinated bilingual. And the students are trained to think in English language as well as in the Korean language, so that they would become more creative and imaginative, the very ingredient much needed for the knowledge workers, and the students' horizon is doubly stretched. Also English language is the language of ICT, the very infrastructure of the knowledge based economy. English language is the language of the world trade and the globalization. In addition, the students, with ability of the language, the future knowledge workers' life long learning process is facilitated, and their survival ratio would be reinforced as speed is crucial in the age of knowledge economy.

The cost of the knowledge workers without the coordinated bilingual ability, they will miss half of the meaning contained in English, as any language has many connotative meaning beyond the level of the texture. For the students of Shakespeare are constantly reminded to read between the lines. And if a knowledge worker lacks the full command of English, he is limited in horizon, slow in the acquisition of knowledge and information but also get only a half amount of the much delayed knowledge and information. It is generally said among the Korean social scientists, the American social science is weak in theory. And it is also said by some of the American social scientists that the Asian students are weak in theory but strong in technical or statistical method. This discrepancy is maintained because many Korean students are weak in English so that they attempt to compensate their weakness with math related courses. And because those who are relatively strong in language often are weak in math related areas that a very few Korean students have deeper mastery of the theoretical aspect of the American academia.

Figure 5. A Four Dimensional Model of Bilingualism



*B3 is a perfect coordinated bilingual whle the rests are different degree of coordiation and compound bilingualism. HUH, 1973, p. 28

At the same time, educational psychologists have long maintained that the structure of IQ basically consists of both linguistic ability and numerative ability. It means that acquiring more linguistic skill, and by becoming an interdisciplinarian, or the futuristic flexible specialist, one's IQ and imaginary ability are improved.

Cultural anthropologists maintain the evolution of consciousness or values in different stages of major technological progress. There are certain deviation among regions and people, but the general direction can be summed up as in the following table.

The evolutionary view of culture has been earlier forcefully advocated by the German sociologists in Weber's Protestant ethics and Tonnis' Gemeinschaft and Gesellschaft. The evolution of culture from the traditional society to the

Table 2 Value Patterns in Agrarian, Industrial, and Postindustrial States

Value Dimensions	Agrarian Society	Industrial Society	Postindustrial Society
Views of Generalized Others Distinction between members of the culture and others			
a. Who are in the culture	Those in the family and the tribe	Those in the nation	Those in developed nations
b. Views of outsiders	Alien and inferior	Inferior	Disadvantaged but still inferior
Difference between males and females	Males are superior in all areas	Males superior in scientific and administrative activities	Except for some biological differences, they are equal
Temporal orientation	Time is unimportant, follows nature's rhythm	Time is money, efficient use is important	Time is important, Effective use is stressed
Abstractions	Few, based on dominant religion or political philosophy	Several, most based on scientific rationalism	Many, inconsistent mix of religious, political, and scientific
Views of animals and nature	People must adjust but may use symbols and rituals to induce miracles to partially control nature	Animals and nature are to be conquered and controlled	Animals and nature are to be protected and restored
Groups of people	Family and tribe are the only important groups and dominate determined position in organization	Family and occupational groups are important and set guidelines for behavior	Family and social groups an important, occupational groups are a necessary evil

Osborn et al (1980), Hay and Havilland, (1974)

industrial society and on to the post industrial society too can be assumed to be accelerated as more students are educated to be the bilingual English speaker. The English language contains more rational and scientific outlook as the language contains more than a hundred years of scientific and industrial

civilization. In contrast, the Korean language has relatively shorter history of exposure to the age of reason, science, and technology. The Korean language is rich in poetic, literary, and moralistic contents, as these have been the main text of royal court examination for the civil servants' examination for over the nine hundred years of the Korean Confucian heritage.

The English-speaking Koreans can adopt the rational and scientific culture contained in the English language in a relatively shorter time span rather than several centuries of process of trial and error. For psychoanalyses Jung suggested the collective subconsciousness is inherited and that value is contained considerably in the language a nation uses. The cases are found in Singapore and Hong Kong. And August 1998 Business Week special edition on the 21st Century economy predicted forcefully that the U.S. and a few other English-speaking countries alone will prosper in the 21st Century. The Japanese language edition of Newsweek singled out 6 technology leaders of the 21st Century: Cambridge, Tel Aviv, Seattle, Singapore, Boston, and Bangalore. Most of the techno-valleys are English-speaking cities, and there are already editorials of some Japanese newspapers to make English the official language of Japan.

Ⅶ. Conclusion

The dawn of the postindustrial society or information society centering on the fast growing technology of computer and communication was heralded in 1946. The development of postindustrial society has intensified the pace of acceleration and has resulted in the knowledge economy. In knowledge economy, the major economic actors are knowledge workers, who received the graduate and post graduate education, in contrast to the key players of the industrial economy, who were the manual workers, that received secondary school and technical training. The themes have been ardently advocated by Karl Marx and the followers in the last one and half centuries:

"military-industrial complex", "the rich get richer and the poor get poorer", "workers of the world, unite! We have nothing to lose but our chain." And the themes have been corrected by "upper 20% of the world population enjoy more wealth and benefit than the remaining 80% of the population," "from brawn to brains," and "from volume to value."

It goes without saying that the quantity and quality of the knowledge workers determine the competitive edge in the borderless competition. In turn, the quality of knowledge workers is determined by the quality of the university education. In contrast, the competitive edge in the industrial society, is determined by the quality of technical and high school, the manual workers. This simple fact has been amply demonstrated by the booming years of the industrial economy of Japan and NICs from 1960's through 1980's.

The scene has dramatically been changed and the champions of Pacific Age spearheaded by Japan and the NIC's following. They have dramatically yielded the championship to the past losers of the Pacific Age, the United States. And the consequences are the 9-year recession in Japan, severe economic crises in Thailand, Indonesia, Malaysia, and South Korea, quickly affecting, Russia, Latin American and North America since early July 1997.

The eight-year prosperity and near perfect employment under low inflation in the United States since March 1991 are considered to be the examples of successful transition from the industrial economy to the knowledge economy centering on the ICT. One should not overlook the fact that the information and communication technology is not an American monopoly. The technology has been developed and shared by the traditional industrial powers such as Japan, France, England, and Germany, including middle technology power like South Korea. And Japan still remains as one of the strongest powers in the industrial economy.

The question is the relative value creation potential between the manufacturing industry with small amount of knowledge, and the knowledge-based industry with little or globally "outsourced" manufacturing and distribution process. And

locally and globally, we witness the massive transition of "value" from manual workers to the brain workers. Other than the 20:80 formula, an American scholar estimated the richest 6% of the total world population are the American citizen. And they possess 59% of the entire world wealth in the World Communication Conference held in Kuala Lumpur, July, 1999.

What strategy should we take to quickly transform the Korean firms to be the fittest for the knowledge based economy? It goes without saying that we should benchmark the fittest in the new economy and train and retrain the Korean mangers according to a new set of goals. And that process certainly requires a reform of the Korean management educational programs and systems. For that purpose, the following suggestions are made:

1. The heart of the knowledge economy is education centering on ICT and high tech industry and management/economics, law, and English language, and not in traditional separate disciplines but must be realigned in the interdisciplinary courses.
2. Life-long education and learning organizations are the keywords in the knowledge economy and bulk of the education is taking place through the process of dynamic interaction among the knowledge workers. The example is found in the Chris Aryrus's double-loop learning of the learning organization, knowledge management with electronic support systems, professional journals, and professional international conferences.
3. Life-long education and learning organization would require increased number of knowledge workers, who would undertake ongoing innovation of knowledge for value creation. Increasingly the new channel for the knowledge workers' life-long education takes the form of frequent international conferences. For that purpose, each college of business can be encouraged to run English discussion clubs for the students' preparedness. And the managers' coordinated bilingualism including English language must be treated as a strategic asset.
4. The innovation of knowledge includes research and development,

organizational innovation, and business/economic contents based on both learning and creativity against the backdrop of the governmental and political reform. Interdisciplinary approach of education and research are the ways to facilitate the transformation from the industrial economy to the knowledge based economy.

5. The uniqueness of the American educational system lies in its inter-disciplinary and creative pragmatism and it is a model of benchmarking in our part of the world. A painstaking efforts must by taken by the initiative of the organizational scientists to persuade interdisciplinary research works with ICT specialists and top managers.
6. The Korean management education can make half of the curricular English language speaking program with at least 1/3 of the visiting faculty members from the advanced countries and similar number of the Korean faculty members visiting oversea universities for a joint research or teaching. Strategic alliance can be arranged with the Korean business colleges and their American counterparts for that purpose.
7. The business departments, English language departments, law depart-ments, and departments of science and engineering can develop an inter-disciplinary programs to meet the demand of the future knowledge workers. Besides, the management department can expand courses in managing tourism, multimedia/edutainment, fashion, small and medium sized firms, and venture more adapted to the Korean standards, a middle power of technology and science as we do not have enough resource and experience.

A careful examination of the Silicon Valley reveals that it is not the physical infrastructure alone that made the success story. It is the free spirit and adventuresome spirit of the venturists, and the Korean campus has been full of anti-establishment spirit in the last four decades. If we can successfully channel this spirit, from the political and ideological ends towards the 21st Century type knowledge industry, our future is also bright.

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