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on

NEW DIRECTIONS FOR UNIVERSITIES IN THE 21ST CENTURY

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Opening Minds to the World

"Peace and prosperity in the 21st century depend on increasing the capacity of people to think and work on a global and intercultural basis. As technology opens borders, educational and professional exchange opens minds"

Institute of International Education (IIE), New York, www.iie.org

Dear distinguished educators, administrators, and professors from Asian–Pacific countries!! It is indeed a great privilege and honor for me to speak about a critically important subject, for which I have a great concern and passion- that is, a new challenge confronting university education in the 21st century. I am very grateful to the UNESCO and Korean Council for University Education for inviting me as a Keynote Speaker at the Third Session of the Regional Follow-up Committee for the 1998 World Conference on Higher Education in Asia and the Pacific on 5-6 July 2005 in Seoul. Korea.

1. Introduction

Historically, we changed from hunting and gathering economy to agrarian economy to industrial economy, and now moving into biotechnology and bio-economy in the future. The industrial economy lasted from 1760s in England and started unwinding in the USA in the early 1950s that gave way for the information economy which we are in now. . The present information era may give way for that of bio-economy in the 21st century that is being shaped by the advancement biotechnology today. During the next couple of decades, the info-technology and biotechnology ages may overlap. The bridge between computer code based on (0 and 1) and genetic code based on (A, T, G, C) may lead to blurring of the demarcation between inorganic and organic life forms. In the future, bio-economy, economic value may be created at the molecular level that is now called nano-technology.

In the development of information economy, we have progressed from data age (1950-1960) to information age (1970-1980), to knowledge age (1990-2000), to Wisdom age. In the four steps to wisdom, education is the instruction and mastery at a given step to level to the next, and learning is the movement from one level to the next. Schools teach education more than they teach learning. Science translated into technology, then into business, ultimately into economy.

The most important economic development in recent years has been the rise of a new system for creating wealth, based no longer on muscle and machine but on mind and knowledge. Labor in the advanced economy no longer consists of working on "things", but of people acting on information and information acting on people. In the information age of the present century, the real power of a nation is determined by its knowledge capacity, meaning the amount of knowledge that its people possess, i.e., knowledge, creativity, ingenuity, and wisdom of its people. The yardstick to measure the knowledge capability of a nation with in the information-based society is the education level of its people, upon which its economic and social development is based. Due to the direct dependency of the nation's power on the education level of its people in the contemporary information societies, the importance of education cannot be over emphasized.

2. Development of Information Economy

The knowledge-based information economy has been created by advancement of computer and telecommunication technologies. Data, information, and knowledge are the three levels of evolving expression that are becoming increasingly important in this information age. Data are ways of expressing things and information is the arrangement of data into meaningful patterns. Knowledge is the application and productive use of information, and finally, wisdom is the discerning use of knowledge.

Data, the most elemental, is concerned with how we express things, and dominated the society in the 1950s to 1960s. The interest was then elevated from data to information (from "data processing" to "information technology") in the 1970s and 1980s while focus was on applications and the meaning of data. The 1990s found the next level up, knowledge, defined here as the practical use of information, which custom still continues into the 2000s. In the four steps to wisdom, education is instruction for mastery at a given level, and learning is the movement from one level to the next. Schools teach education more than they teach learning since, for each higher level up, learning requires a new technology platform. As the time passes from the old industrial age to the new information age, the education paradigm should also change.

The information era was brought by marriage of computers and telecommunications. The knowledge age, a notch up from the information era of the past, is blending of computers and telecommunications with human actions. For the knowledge era, we need a new technology platform to teach student. Like the nations that did not catch up with the wave of changes during the transition from agrarian societies to the industrial societies, the nations that do not catch up with changes at present with a new technology platform will face even more severe consequences.

The information age, in which we presently find ourselves, is characterized by an expanding domain of activity for individuals on an ever-shrinking globe. Advancements in transportation and Internet technologies rapidly shrink the world and turn it into one veritable Village Earth, consisting of one giant cyber space. The combined effect is the globalization of every aspect of our lives; not only geographically but also in terms of business, commerce, and ideologies – and in terms of speed and the scale of a global impact that can be caused by an individual or a nation with a simple push of a button.

The internet that contributes for the ubiquity is especially powerful, allowing every business and every person to span the globe, making all businesses global in nature. If used for a good purpose, it can be extremely beneficial. But in the wrong hands, it can also be extremely destructive and the consequences devastating. Therefore, users and designer of powerful new technologies have greater moral obligations than ever before.
The information age that we are in is also characterized by the fast churning of technologies that makes life cycle of most technologies extremely short. One result is the ever-shortening timeframe of the commercialization of new technologies, especially in the mass-produced consumer market. The acoustic sound disc that took many decades to gain a foothold in society was replaced by the CD in a decade or less, which in turn is already being replaced by MP3 and other forms of emerging media.

3. Educational Paradigm for the 21st Century

The 21st century university stands in dire need of a paradigm sift, calling for a revolutionary fresh approach. We have to prepare our young students to live and work in an increasingly complex and challenging dynamic world. The educational paradigm of the twenty-first century will be far different from that of the twentieth century that was successful. As Lew Platt, former CEO of Hewlett Packard, succinctly states, "Yesterday's recipe for success clearly will not be tomorrow's recipe for success." As the time passes from the old industrial age to the new information age, the education paradigm should also change.

There are two elements in education: the knowledge element that should adapt to the changing times and environment, and the personality element that should not change. Any education should address the both. Knowledge element itself can be broken into five components: know-what, know-how, know-why, know-where, and know-who.

The knowledge element, "know-what," focuses on the most fundamental of a society, the need to convey known information and knowledge while the element, "know-how" focuses on production technique and technology. These two formed the major content of education in the industrial era in the past. However, the education in the information age should focus on the additional elements. The focus should be on "know-why" that is exploration of causes and effects, and on "know-where," that is

collation of various sources of information as well as on "know-who," that deals with the study of man as the creator, analyzer, and user of the information. The last component also means education on humanity and, most importantly, teamwork and morality.

Education should not be simple accumulation and conveyance of information and knowledge but nurture the learning ability of the students. Information can become knowledge through education, and knowledge can become wisdom that leads to the solution to unsolved questions. The twenty first century demands more people with wisdom than those with knowledge. In addition to problem-solving capacities, deductive abilities, and communicative abilities, the right attitude of the students when confronted with the new, risky situation or problem should be also developed with care. In the twenty first century, educators must be students themselves in study of the future.

The globalization and the rapid change in the technology cause major revision of the educational subjects to reflect more on "know-why", "know-where" and "know-who". Moreover, the revolutionary information technology started causing major impacts on the method of education causing drastic change from its very foundation.

4. New Tools of Education, Another driver for change

The development of information, communication, and multi-media technologies is bringing about drastic changes in traditional methods of education. Means of delivering information have diversified due to the advancement of information and communication technologies; thus, conveyance of knowledge no longer takes place only in lecture rooms. Traditionally, college education has been limited by time and space. But, the Internet, satellite broadcast, and other newly developed means of moving around information have made possible virtual universities that conduct education in building-less cyberspace, giving birth to the term "Distant Learning" (DL). The DL not only greatly extends the population of the students reachable by a school but also it gives students wider selection of courses by allowing them to take courses remotely from other cooperating schools without extensive travel. It also extends the pool of instructors from whom a school can invite to teach. If used judiciously, DL can increase the efficiency and flexibility of education, but is still in an exploration state, and different schools are using the technology differently.

5. New Directions for Higher Education in the 21st Century

- **Globalization and Global Leadership Education.**

We are experiencing one of the most significant changes that we have ever experienced in recent history, a global seismic shift in human history. As we get deeper into the twenty-first century, the advancement in the cutting-edge science and technology is bringing us an accelerated globalization for every aspect of our lives; we have entered the global age.

In this ever-shrinking globe, we are rapidly becoming global citizen, i.e., we are living and working in the rapidly changing global environment. The globalization has caused consolidation among various parochial and localized views and ideologies; i.e., convergence among many splintering local economic and social forces, among differing challenges and opportunities, among contradictory interests and commitments, among diversified values and tastes, and among various environmental issues; to name a few. Thinking and working globally will ever be critical for survival and prosperity in this 21st century for all mankind sharing one globe. As global citizen, we are required to develop a global mindset, i.e., increase our capacity to think and work on global and intercultural basis. This can be accomplished through new higher education meeting the challenges of the 21st century.

In solving complex problems in the global context, it is not sufficient for the future leaders to be well prepared only in academic and technical fields. They must be trained to think and act with global leadership qualities. As the another challenge for education, universities must provide global leadership training and education, which combines academic, technical education with training in business ethics, social responsibility, environmental protection, and mutually beneficial cooperative perspective. Above all, the future global leaders must be honest, trustworthy, and truly dependable. University education faces a real challenge to offer effective character development education, combined with practical experience in social service and international cooperation.

- **Education for the "Unknown"**

We moved from a Newtonian physical world of industrial age to an Einstein's quantum physical chaotic world of information age. The Newtonian physics is based on the principle of cause and effect, of predictability and certainty, of distinct wholes and parts, of reality being what is seen. Newtonian physics is science of quantifiable determinism, of linear thinking, and of controllable future. It is a world that does not change too fast or in unexpected ways. We now live in a time of chaos, rich in potential for new possibilities. A new world is being born. We need new ideas, new ways of seeing, and new relationships to help each other. Quantum physics at subatomic level is changing our understanding of how the world works. The quantum universe is a world of chaos and process, not just of objects and things. Quantum physics does not speak of definite locations, speeds and path of quanta. Instead, quantum physics speaks of probability and chances.

In the information era, the rate of change of knowledge is fast, and the life cycle of new information and knowledge, especially in technical fields, is very short, fast, and explosive. The new information and knowledge are growing and dying out at an explosive rate. The knowledge gained from textbooks in schools becomes obsolescent quickly. Therefore, "spoon-feeding" education based on memorization should be drastically curtailed. Instead, we must encourage students to explore "new knowledge with no answers as yet" and help them to acquire abilities to think critically and to solve problems creatively. We must move away from uniform, all-encompassing education, which attempts to teach students memory-based information in all academic fields.

Inter- and Trans-disciplinary Education

The new challenge facing university education in the 21st century is to impart broad knowledge that transcends the barriers of academic disciplines. The academic departments in universities have traditionally been established along the dividing lines of academic fields. But, the problems and challenges in today's world do not occur along the lines of academic disciplines. For example, an accident in a steel mill is not just a problem in metallurgy, but also a complex problem involving mechanical, electrical, and electronic engineering, and

operational management. Therefore, a solution of the problem requires a broad knowledge and know-how in all relevant technical fields. To educate the future leaders today's university education must emphasize interdisciplinary and trans disciplinary educations that network among various academic fields. Interdisciplinary education provides opportunities for students to major in more than one field, centering around somewhat related academic fields. On the other hand, trans-disciplinary education allows students to major in unrelated or dissimilar academic fields.

- **Changing Roles of Professors**:

The other challenge facing university education today is the changing role of professors. The professor's role is already changing, and it must change swiftly. Furthermore, through their actions and lives they lead, professors must set proper examples for students to emulate the desire to learn, to live an honest, ethical life, and to regard the entire world as the main arena for their future activities. Professors must change to be effective in changing realities of today's fast-paced world. Various technical advancements in communication and multi-media have made it possible for learners to acquire information and knowledge, at any time and anywhere, without professors in the physical environment such as classrooms. In other words, the role of the professor, simply as a conveyor of knowledge only, is shrinking severely. Because of constantly developing new knowledge and information, professors must become "the students of the future" who, together with students, pursue answers and solutions. In addition to teaching and research, professors must carry out the role as a mentor and a guide for life.

* Whole Person Ethical and Moral Education

In the industrial age, the assets and primary drivers of economic prosperity were machines and capital, i.e., material resources or things. People were also considered as things that were necessary but replaceable. But in reality, human beings are four-dimensional beings, consisting of physical body, mental intelligence, emotional heart and spirit. Thus, true education for human beings is not only conveying and transmitting knowledge but also cultivating the intellectual, moral, and spiritual realm beyond one's physical body. Especially in this high-speed

information society of the 21 century, educating a whole-person including academics, moral and spiritual development is being recognized to be very important. More and more, spirituality is being recognized an important ingredient for corporate success.

6. New Educational Programs For the 21st century at MIT

Dr. Charles Vest, former president of MIT, said in 2001 that we must change our educational programs and curricula to better prepare young men and women for the fast-paced, global, electronically connected industries they would encounter. How must we adapt to prepare our students to thrive in the coming reality, now and twenty years from now? In effect, how do we make ourselves effective tour guides for a world we have never experienced ourselves? Those breakthroughs will come if we prepare our students to work at the highest levels of complexity, and across every traditional boundary between academic disciplines, between academia, industry, and government, and between nations and peoples around the globe. Universities can make great contribution to the global village by helping to define and promote the shared values of a truly global society. If universities or their graduates partake solely of the values and traditions of their home cultures, if they become isolated in narrowly defined academic disciplines, or if they ignore the growing connections between nations and peoples, they will be unable to offer true leadership in the 21st century.

7. Reforms of Curriculum Recommended at Harvard

In Dec. 2004 and Jan. 2005, Harvard University had a series of forums and studies on new needs of education in this century in an attempt to review their educational system that it had used for many decades. The result of their study was published, recommending sweeping and major changes in the existing educational system of Harvard University (www.fas.harvard.edu/curriculum-review/Summary_of_Recs.pdf.). The extent of the review and the changes recommended are thorough and major enough that only several of such reviews and changes have been conducted and recommended during its long history.

Summary of Principal Recommendations made:

- **Harvard recommended that we enhance significantly the opportunities for our students in international studies and in the sciences, two areas in which the world has changed most dramatically. Every Harvard College student should be expected to complete an international experience, defined as study, research, or work abroad, and - no matter their level of proficiency upon entering Harvard - to continue study in a foreign language**

- **Harvard recommended that its majors should entail fewer requirements, and that the timing of choice should be delayed to the middle of the sophomore year to provide students greater opportunities for intellectual exploration.**

- **Harvard recommended reducing the size of academic majors so that students will be able to explore more widely a variety of academic disciplines and approaches to knowledge, from multidisciplinary, cross-disciplinary, trans-disciplinary or interdisciplinary work.**

- **Harvard recommended small group seminars and smaller classes because they recognize that a liberal education is above all a shared endeavor of students and faculty. It emphasizes smaller classes, beginning with small-group, faculty-led seminars.**

- **Harvard recommended that freshmen be assigned to their upper class House in dormitory to build a strong sense of community.**

The recommendations made by the curricular review group of Harvard listed above are strikingly similar to the programs that are presented next and have been used by Handong almost one for one. Only major difference is that the Harvard recommended programs are only recommendations while the programs that were described in the next chapter have been used for years since the foundation of Handong.

In spite of the similarity between the two sets of the programs, however, there are major other differences. One of the most visible is the lack of emphasis on the need for spiritual formation of students in the Harvard programs. With the power and pervasiveness of 21st century technologies and business tools, with potentially disastrous consequences in a colossal scale if used wrongly, it is more important than ever that education should also address moral and spiritual aspects. The other is that the

Harvard programs do not specifically link what students are learning with practical applications, real business, and entrepreneurship essential in this fast evolving information society.

8. Educational Activities on-going at Handong

The sweeping changes in lifestyle, ideas, commerce, and technologies brought about by the factors mentioned above necessitate a major overhaul of the traditional educational system that was designed to serve the needs of the industrial era of the past century as mentioned earlier. The vast expansion of the individual and corporation's domain of possible activities offers tremendous opportunities, as well as challenges. Workers today should not confine their domain of activities to country boundaries or their major fields. In order to meet these needs, we need an educational system that is global in nature and covers the shrinking world, while also spanning multiple disciplines, equipping students with knowledge that is adaptable to the rapid change.

The educational programs discussed below address these specific needs mentioned in the Harvard Report, along with those that have been used at Handong Global University.

Handong Global University (HGU) opened her doors of higher education with global horizons in 1995 at Pohang, South Korea, the Capital City of Steel in the world. Cognizant of the accelerated pace of globalization with onset of the emerging IT Age, HGU introduced many innovative programs in her undergraduate educational programs: HGU admits students without declaring majors and requires all students to study English and Chinese and computer in the first two years and requires them to double major in allied fields such as language and international relations, business and economics, biotech and food science, electronics and computer and so forth. For honesty education, all exams are conducted without supervisors. These were unheard of in Korea, in the beginning. For these innovative programs, HGU received excellence awards for education reforms from the Ministry of Education of the Republic of Korea for 1996-1998 years as the model university for 21st Century. HGU was established with global reach and impact. The academic mission of HGU is uniquely positioned to educate honest and competent global leaders for the global, technology –driven market place of the 21st century.(www.handong.edu).

* *Global Education & Activities at HGU*

Handong Global University (HGU) started the joint MBA program with the Institute of Finance and Economics(IFE) at Ulaanbaatar in Mongolia in 1999. HGU made an agreement of cooperation between the Ministry of Higher Education, Afghanistan, and KHANDAHAR University to develop and cultural exchange in April 2003. HGU sent faculty and students to Afghanistan to teach computer skills in summer 2003. HGU also made an agreement between the Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan and Tashkent State University of Economics for establishment of joint MBA program on 10 September 2003. Agreement of cooperation between the "Istedod" Foundation of the President of the Republic of Uzbekistan, and Tashkent University of Economics and HGU was also made on September 10, 2003.

HGU held the first Intellectual Properties (IP)-Information Technology (IT) International Conference, the first of its kind ever in Korea in 2001 with 22 outstanding speakers versed in IP and IT laws and in business and education. The Conference speakers included stellar figures including Honorable Judge Zhipei Jiang of the Supreme Court of China in charge of the Chamber responsible for International Trade, Technology and Intellectual Property and Dean G. Robert Johnston of the John Marshall Law School, Chicago, noted for introducing Center for Excellence in IP, IT and IBT (International Business and Trade).

The First International Law School in Asia Opened at HGU

The IP-IT Conference was followed by the establishment of the Handong International Law School (HILS / Dean Lynn Buzzard) in 2002 to meet the compelling need for Korea and for Asia to globalize Asian legal education. HGU had a vision that Asia must become more global in the legal field, a vision that Asia must educate a new generation of Asians in law and equip them not only to serve their peoples and nations but also their neighbors and Asia and the world. For strategic and practical reasons, HILS has started with the US Law School curriculum taught in English. The first two students graduated from HILS in December 2004 passed the US bar from the State of Tennessee in June 2005.

Global IT Education

The Korean Ministry of Information and Communication awarded HGU a government-funded program to develop global Information Technology (IT) education in English (1999, 2000). Under this program, international students from developing Asian countries can study IT at HGU. This is an important program since Experts in IT can make great contributions for development of a country's competitive power, and HGU's goal is to educate emerging leaders for developing countries in the world.

Worldwide Links in Engineering Education

HGU is the only member university of the Global Engineering Education Exchange (GEEE) program in Korea, administered by the International Institute of Education (IIE) in New York. GEEE members comprise the leading engineering universities in the USA and Europe.

Business today is truly global; even small and medium enterprises are affected by international competition, and global businesses are interrelated and networked among each other. The emergence of the IT age along with its advances in communications, information dissemination, and transportation were made possible by technological advances in electronics, computers and avionics. The technological advances make the countries in the world ever closer almost to form a common body. The globalization of the society and resulting globalization of business in this ever shrinking world would require global knowledge of different countries and cultures that extends all the way to the remote corners of the world. For global workers today, world knowledge should encompass foreign cultures, languages, politics, law, and geography. This makes internationalization of the college curriculum essential and basic.

Internationalization requires much effort, resources, and dedication for the school to formulate a joint exchange program and to invite international faculty. Fortunately, the Internet and modern transportation make the task much easier than before and feasible in most cases. The internationalized curriculum would increase proficiency in another language, while also providing opportunities to study, research, or work abroad. This exposure to foreign cultures would greatly help the students form wider perspectives and global views early in their lives.

* *Multi disciplinary: Flexible Academic Majors*

In a time when the differences between disciplines are blurred, students need wider latitude in choosing their majors, allowing combination of traditionally dissimilar and rigidly separated fields. The academic departments in universities have traditionally been established along the dividing lines of academic fields. But, the problems and challenges in the real world do not occur along the lines of academic disciplines. For example, an accident in a steel mill is not just a problem in metallurgy, but also a complex problem involving mechanical, electrical, and electronic engineering, and operational management, etc. Therefore, a solution of the problem requires a broad knowledge and know-how in all relevant technical fields. At Handong, students are expected to acquire knowledge in adjoining fields that will supplement and support their academic majors, and they are required to take double majors in its related fields. In order to make this possible at Handong, the timing of choosing students' majors is delayed until later in their academic period after they have had a chance to acquire basic knowledge in a broader spectrum of different fields and are more capable of making an informed decision.

The flexible choice of a major is important especially in the information age of extremely fast changes in technology. Today, it is very rare for college gradates to keep their major throughout their lives. This is especially true in the case of a technology major that has relatively short life cycle. Statistics show that less than 30 percent of the graduates of a well-known engineering school in the US actually keep their major field after 5 years from their graduation. This phenomenon will grow as time passes. As graduates work for companies, they will accumulate valuable business experiences that new graduates do not possess, though their technical skills will become obsolete and overridden by new technologies. Naturally, their engineering jobs will be turned over to the new crop of graduates, and they move on to management or business positions, or even different fields. Flexible and combined academic majors anticipate the inevitable transition/growth of the students' future career ahead of time and equip them for it.

Sense of Community

At Handong, most students reside on campus and the university functions practically as a self-contained community. Students study together, eat and live together, pray and play together. When students share time, space and experiences so intimately, they also

learn how to share responsibilities, participate in group activities, cooperate, help, support, and serve each other. Skills and dispositions such as these will not appear in their transcripts, but they are just as important for prospective leaders and workers in the twenty-first century as any other sets of qualifications.

In this age of high-speed Internet, e-mails and metallic sounding CD music, the second element in education, the personality element mentioned earlier, can easily be lost. This is an essential element, providing students with a sense of community and an atmosphere of camaraderie. This is an essential element, providing students with a sense of community and an atmosphere of camaraderie. Students should not miss this important element during their college lives. Yet, students many times easily withdraw within cocoons of cubicles and earphones, shutting themselves off from the outside world. They easily miss chances to learn the human aspects of life that help shape their personalities and value systems. Thus, there must be a program that addresses this specific need.

Building Relationship between Professors and Students

At Handong, the professors love the university, their academic vocations, and most importantly, their students. While it may not be unusual for professors to love their research, their academic disciplines, and the ambience of university life, many have only limited contact with their students. If professors work at research universities, they must devote much time to their research projects, and little time left for students. Instruction at research universities is often provided by teaching assistants, not full-time and tenured professors. However, at Handong, professors do more than work on research projects. First, full-time and visiting professors complete all of the teaching at Handong, rather than teaching assistants. The professors also counsel and mentor students. They pray and worship with students during Wednesday chapel services. They eat with students in the cafeteria or campus restaurant and sometimes have cookouts together. Most full-time professors meet weekly with a team of about 25 students and have their own programs. The instructor leaders guide the groups academic as well as spiritual growth and are instantly accessible whenever a member of the group needs help. In addition to fellow students, the professors are the major contributors in shaping the students' personalities. Professors teach the second element of education, the personality element, as well as others such as "Know-why", "know-where" and "know-who". Again, in an information age emphasizing high efficiency

and expediency, this valuable aspect can easily be overlooked entirely during the school. Instructors' teaching can degenerate into the mere transfer of information.

Education with direct Links to Applications and Business

At Handong, we have established a global MBA program to teach students technology (IT), business, and law and to maintain incubation centers to help students actually launch new businesses using the multi-disciplinary skills they learned and inventions they made. Additionally, an institute called "Global Institute for Ideas and Innovation (GIII)" is being formed to tie all these efforts together. One of its functions is to help students learn how to apply IT and other learned technologies by tying together courses offered by our school of law(HILS), school of Global Management(GM) and school of engineering. The institute will also help fund and incubate newly formed companies. The institute will also function as a think-tank for the IT industries in the world.

The institution's initial focus is on IT because it enormously influences our lives and is pervasive. Also, the IT industry's power will in many ways govern the world in the foreseeable future. The IT industry has now come to constitute a major portion of overall industry and is a major source of the GNP for advanced countries. The IT industry is regarded as the next gold rush on the international scale by developing countries such as China, India and Eastern European countries wanting to quickly catapult themselves into a major international players' position. However, the most important reason why Handong focuses on IT is because it is a tool that developing countries can use to shorten the gap between themselves and developed countries.

The information age, characterized by fast moving technologies and markets and blurred demarcation between different disciplines mentioned above, is vividly captured by the merging of PC and communication technologies.

PC technology has now penetrated just about every aspect of our lives, from children's toys to battlefield computers carried by foot soldiers, with the Internet connecting them all. The computer industry is finally merging with the communication industry as PC technology penetrates communication applications in broad areas. Regular telephone service, the last remaining stronghold to remain untouched by PC technology, is at last being invaded by PC technology, which is replacing telephones with Internet voice service. The merging of these technologies culminates the consolidation of industries that started decades ago, resulting in a total conglomeration of communication, computer, video, entertainment and content industries: the creation of the Information

Technology (IT) industry. Thanks to the IT revolution, almost every new electronic gadget is connected to the Internet in one way or another, and the words "Information Technology" (IT) are becoming synonymous with electronics, especially consumer electronics. Unlike in the past, some of the most sophisticated and cutting-edge technologies today are first introduced as consumer products, frequently even as toys.

The reshaping of the industry is causing profound global changes that are rippling through much more than the IT industry itself. The new IT industry - with its non-traditional overlap of dissimilar industries, extremely short learning curve and time to market, global pervasiveness and the possible impact on the future of a country - makes it necessary for us to look at the industry as a whole with a fresh view. Specifically, we need a new non-traditional, multi-disciplinary approach that is commensurate with the modern industries' unique characteristics. The fresh approach should harness the advantages that the new IT industry presents, spanning from the education of students to the formation of national and international initiatives specifically targeting international IT strategies.

The traditional education system, with its rigidly compartmentalized disciplines among research and development, business, marketing, socio economic aspects, ethics and law, should make way for an educational system that draws together a multitude of disciplines, emphasizing hands-on experience that leads to actual applications in business to serve the IT industry. Therefore, the new education system should teach students how to apply the skills they learned and technologies they designed directly to applications and business. It should also teach students the ethical and moral implications of a new technology that has dire consequences if used wrongly.

The days of strictly compartmentalized work functions, where researchers indulge only in research without regard to where and how the result of their work will be used, are over. Early on, students should be taught to be sensitive to the business and implications of every project they are working on. They should learn how to view the overall project picture using their multi-disciplinary skills, even if they work on only a part of a project. Students should be taught how a company is run and how to become entrepreneurs by applying what they learned directly to business. Hopefully, some students will form actual companies, attract investors, and develop and build new businesses.

Korea, a country that has traditionally considered education as its most treasured asset, had the foresight to recognize some of these lessons long before the information age. We will keep this precious tradition and improve upon it to strengthen the nation. At

Handong, we believe that the whole person education is the best tool for achieving world's real peace and prosperity in the 21st century Further, education will decrease the knowledge gap between developed and developing country. And it may help emerging countries catch up in an arena of intense competition, between developed countries who are trying to maintain their superior position and the developing countries, who are trying to overtake them.

9. Conclusion

Facing the new century, we are experiencing the revolution in information and knowledge, and are entering the age of globalization and Village Earth in which all parts of the world are competing with one another. Universities are facing new challenges as well. The twenty first century is called the age of '3C' --- Competition, Change, and Customer. Universities, in order to survive, must implement changes geared toward the future society continuously and rapidly so that, customers of education, the students, can compete in the world stage.

The environment we are facing is demanding paradigmatic, radical changes as opposed to gradual changes. The shift in paradigm requires total and fundamental changes in 3P, Persons, Processes, and Products. The Persons (i.e., teachers) must adapt to the new age, adjusting the Processes of education, in order to create the Products (i.e., new human resources). It is a very difficult task to accurately predict the demands of the knowledge-based society on college education. What we teach and learn, and how it is taught and learn will drastically change in a few decades. So far, we have not seen a country that is fully equipped with a system of college education ideal for the coming knowledge society. Surely, its blueprint that meets the demands of the new age will be far different from the existing ones.

Educators are producing future leaders and therefore must be futuristic themselves. The past, present, and future are not independent of one another but related to one another. Preparation for the future must be preceded by learning the lessons from the past and efficient implementation of them in the present. Today's decision is the reality of the future. We should realize and remedy the wrongs and inadequacies in the past, thereby build the basis for many splendid tomorrows.

Thank you !! July 5, 2005

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AUTHOR:

Dr. Young-Gil Kim was appointed as the founding and chartered president of Handong Global University in Pohang, Korea in 1995. Dr. Kim realized the importance of foreign language and IT skills in order to become leaders in 21st century. Therefore, he implemented a new educational curriculum that require all major classes to be conducted in English, everyone to learn Chinese, and also required all students to be familiar with various computer platforms. Moreover, Dr. Kim stressed honesty among students and adopted Honor Code. Students were not only driven to be academically challenged, but also required to have high moral and character standards. Handong Global University, from its beginning, had the global horizon in its founding belief, and invited students from developing countries in Asia. As a result, Dr. Kim received a special education medal from the Mongolian Government in 2003 and received an honorary doctorate degree in International Management from the Institute of Finance and Economics in Mongolia. Dr. Kim was also invited by the Ministry of Higher Education in Uzbekistan to give a special lecture on 21st Century university education in September 2003.

Prior to becoming the president of Handong Global University, Dr. Kim served as a Professor at the renowned Korean top technological graduate school, Korea Advanced Institute of Science and Technology ("KAIST") for 15 years. Dr. Kim was a professor in material science and engineering. Dr. Kim is well known in his fields and possesses about 100 papers and 25 international patents. One of his inventions (Semi -conductor Lead Frame Alloy-PMC 102) was sold to Germany in 1986. This was the first high technology ever sold to the developed country in Korean history. Motorola also uses this alloy in its products. While working at KAIST, Dr. Kim has received many awards not only from the Korean government but also from various international organizations.

While in the USA, Dr. Kim has also worked at NASA-Lewis Research Center in Cleveland, Ohio from 1974 to 1976. He worked on the high temperature alloys for aerospace applications. He also worked at the Research and Development Center at the International Nickel Company ("INCO", Suffern, NY) in Suffern New York for 3 years. For his research efforts at NASA and INCO, he was awarded with Industrial Research 100 ("IR 100") award in 1980. While he was working at NASA, he also received the NASA Tech Brief Awards twice for inventing high temperature alloy (MA 6000). He is a

fellow of American Society for Metals (ASM). He is also listed in the "American Men and Women of Science ("AMWS") in 1994 for his contribution to the material science field.

While serving at INCO, Dr. Kim was invited by the Korean Ministry of Science and Technology as a professor at KASIT to contribute in the advancement of Korean scientific advancement in1979. While working at KAIST, Dr. Kim received two highest medals in his field from the President of Republic of Korea in 1982 and 1986 to honor his contribution to the Korean scientific and technological development. He was also awarded as the "Scientist of the Year" of Korea in 1989.

Dr. Kim received his Ph.D. in Material Science & Engineering, from Rensselaer Polytechnic Institute in Troy, New York in 1972. He received his Masters Degree in Metallurgical Engineering from University of Missouri-Rolla in 1969. He received his Bachelors Degree in Metallurgical Engineering from Seoul National University, in 1964 in Korea.