

**Globally Collaborative Peace Gaming
with
Global University System**

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Takeshi Utsumi, Ph.D.
Chairman, GLObal Systems Analysis and Simulation Association
in the U.S.A. (GLOSAS/USA)
Laureate of Lord Perry Award for Excellence in Distance Education
Founder and V.P. for Technology and Coordination of
Global University System (GUS)
43-23 Colden Street, Flushing, NY 11355-5913
Tel: 718-939-0928
utsumi@columbia.edu
<http://www.friends-partners.org/GLOSAS/>
<http://www.itu.int/wsis/goldenbook/search/display.asp?Quest=8032562&lang=en>
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1 Introduction:

Alleviating global warming and attaining global peace are the most urgent and complex problems of our time. Both are confrontation prone as deeply rooted in cultures and traditions. Although both cannot be solved over-night, we must have appropriate mechanism to understand their causes and prepare our youngsters to cope with them in years to come.

Economic interdependence among nations and cultures is spawning a global economy. Globalisation also highlights clashes of divergent cultures and belief systems, both political and religious. If global peace is ever to be achieved, global-scale education, with the use of the modern digital telecommunications, will be needed to create mutual understanding among nations, cultures, ethnic groups, and religions. The Internet is the future of telecommunications and can be a medium for building peace.

2 Intercultural Understanding for Global Peace:

2.1 What is peace through culture?:

The word “culture” is derived from the two words “cult” and “ur.” “Cult,” of course, means cultivation. “Ur” is an ancient Chaldean term meaning “light” -- the creative aspect of the universe. Hence, culture is literally the cultivation of creativity.

Peace is more than just the absence of war. Just as it takes acts of war to make war, it takes acts of peace to make peace. Peace, then, is a structure of positive acts of creativeness that are carried out in a spirit of high idealism.

“Genuine peace must be the product of many nations, the sum of many acts. It must be dynamic, not static, changing to meet the challenge of each new generation. For peace is a process -- a way of solving problems.”

John F. Kennedy

“Peace is a never-ending process, the work of many decisions by many people in many countries. It is an attitude, a way of life, a way of solving problems and resolving conflicts... It requires us to work and live together.”

Oscar Arias Sanchez; Nobel acceptance speech, 1987

2.2 Comparison of Eastern and Western Cultures:

Eastern Culture	Western Culture
Polytheism	Monotheism
Truth, Goodness, Beauty	Justice, Equality, Freedom
• Japan: Champion	• USA: Champion
• Random	• Logical
• Intuitive	• Sequential
• Subjective	• Objective
• Looks at wholes	• Looks at parts
• Holistic	• Rational
• Synthesis	• Analytical
• Art and Literature	• Scientific
• Emotional thinking	• Critical thinking

Table 1

Both cannot and should not dominate other, but should have close dialogues between them.

Global University System (GUS) is adopting philosophies and principles that emphasize trans-cultural and moral values rather than ideologies. The priority is in academic freedom and quality in education.

2.3 Hierarchy of Civilization, Culture and Religion:

Hierarchy of civilization, culture and religion may be depicted as follows (Figure 1);

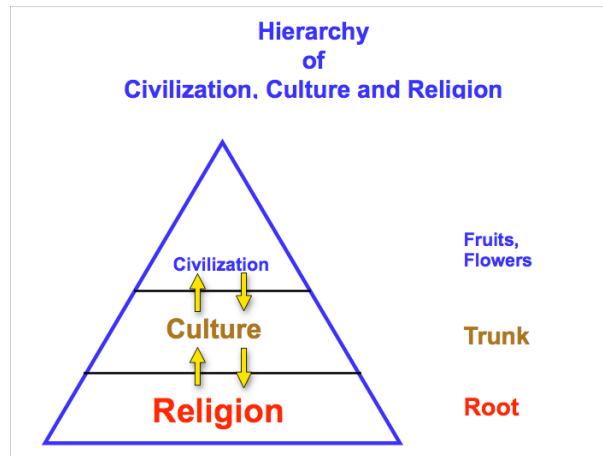


Figure 1

Religion may correspond to root of a tree, culture to trunk and civilization to flowers and fruits. Japan could be a cherry tree, China a peach, and America an apple. We need a cross pollination for jointly creating a new global culture and civilization of a global society in the knowledge age of the 21st century by youngsters around the world.

Their collaboration across boundaries of continent and ocean, and of nation and culture would bring new age, as similar to the Golden Age of Spain when Jews, Christians and Moslems co-mingled and co-existed to create Renaissance out of the Dark Age. Our new age would enable us to create a new civilization, say, neo-Renaissance with the appropriate use of advanced Information and Communications Technologies (ICTs) by all the people of the world, not only those three religions, but also those of orient in Asia and the Pacific, and Africa, etc.

3 Peace Gaming Project:

3.1 Globally Collaborative Environmental Peace Gaming (GCEPG) Project:

The GCEPG (which was initiated by GLOSAS/USA in early 1970s [Utsumi, 2003] (Figure 2)) is a computerized gaming/simulation with a globally distributed computer simulation system to help decision makers construct a globally distributed decision-support system for positive sum/win-win alternatives to conflict and war, particularly focusing on the issues of environment and sustainable development in developing countries. The idea involves interconnecting experts in many countries via the global Internet to collaborate in the discovering of new solutions for world crises, such as the deteriorating ecology of our globe, and to explore new alternatives for a world order capable of addressing the problems and opportunities of an interdependent globe. Gaming/simulation is the best tool we have for understanding the world's confrontation prone problems and the solutions we propose for them. The understanding gained with scientific and rational analysis and critical thinking would be the basis of world peace, and hence ought to provide the basic principle of global education for peace.

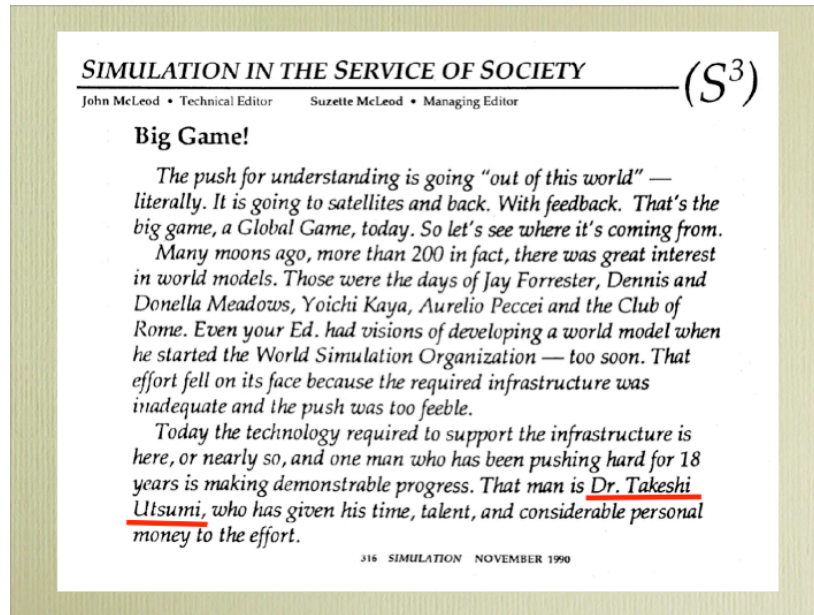


Figure 2

With global GRID computer networking technology (which concept Dr. Utsumi initiated (Figure 3) [McLeod, 2000]) and Beowulf mini-super computers of cluster computing technology, we plan to firstly develop a socio-economic-environmental simulation system and then a climate simulation system in parallel fashion, both of which are to be interconnected through broadband Internet in global scale (Figure 4). This two-tier system will ensure comprehensive system for each by their experts.

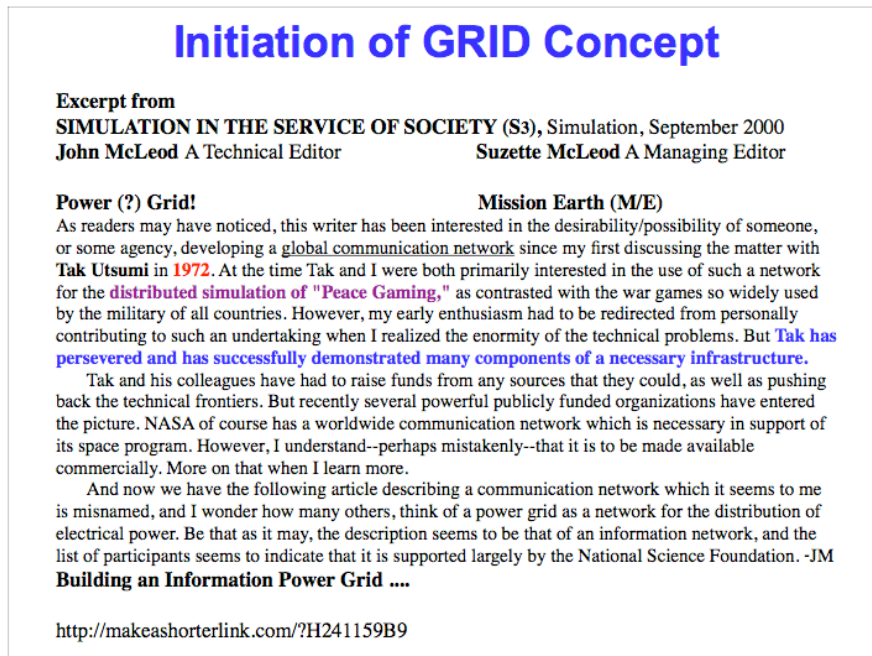


Figure 3

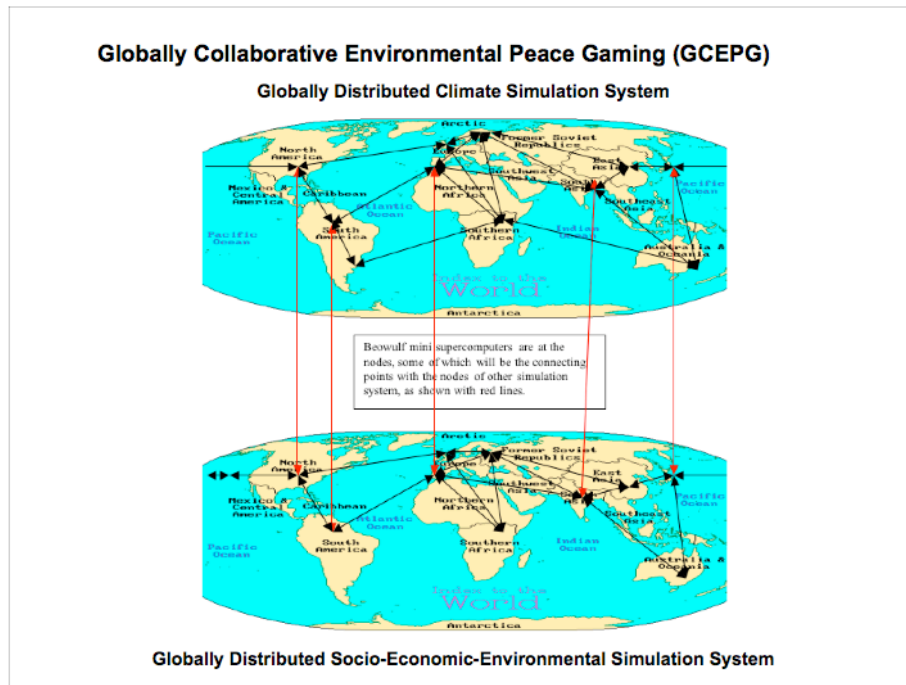


Figure 4

3.2 Global Socio-Economic-Energy-Environment Development (GSEED) Project:

The GSEED Project [Utsumi, 2007] is a variation of and the initiation of the GCEPG. The quantitative policy analysis of globally collaborative GSEED Project will focus on the sustainable development in Japan, the US, China, Russia, Kazakhstan, and many other relevant countries.

The initial focus on energy security will be on the global interrelations and interdependencies among those countries with the deployment of a gas pipeline from Tomsk, Siberia to China, and the construction of hydroelectric dam in the Republic of Altai, Siberia where there are five UNESCO World Heritage sites which draw increasing number of tourists (400,000) into a small town of Gorno-Altai with only 9,000 residents. This gas pipeline will certainly affect socio-economic developments of Siberia, China, and hence the ones of Japan, the US, Europe and others. Japan will also increasingly depend on the energy (oil and gas) supply from Russia and uranium from Kazakhstan.

This GSEED Project will then demonstrate integrated and synergistic approach among grassroots, government, university, stakeholder, etc. Use of graphic info modeling/mapping and potential "peace gaming" (*) on key issues and solutions will assist each group's ability for standardized data gathering and situational analyses, projecting out possible outcomes for more informed decision making and activities. It brings together most sophisticated university-based mathematical modeling techniques and experts and regular people who can then more easily see--at a glance--how issues and outcomes can impact and interact each other.

(*) which term Dr. Utsumi coined more than 35 years ago. War gaming is to win the war once when it happened, and peace gaming is to avoid the occurrence of war (Figure 5). Avoiding war is much cheaper than waging war. Our "peace gaming" might be equivalent to the scale of Pentagon's "war games," as to contribute to the alleviation of global warming and hence global peace.



Figure 5

This project will train local experts for leadership development, in relation to strategic use of technologies and cooperation among stakeholders for more effective advocacy, informed policy, public understanding and participation and concrete community development.

This project will have two-tier system:

- a. One for training young would-be decision makers for understanding interwoven world phenomena with rational analysis and critical thinking, and then in crisis management, conflict resolution, and negotiation techniques basing on "facts and figures" and
- b. The other for helping decision makers to construct a globally distributed decision-support system for positive sum/win-win alternatives to conflict and war.

4 Development History:

4.1 Summer Computer Simulation Conference (SCSC):

After pioneered in computer simulation starting with the analysis of chemical reaction on absorption of air pollution gases in early 1960s, Dr. Utsumi created the SCSC in early 1970s, (which hence proliferated in the US and developed countries), at which time he conceived the peace gaming idea mentioned above.

4.2 Global Telecom:

Since early 1970s, Dr. Utsumi played a major pioneering role for the "closing digital divide" with substantial time, effort and private fund as extending U.S. data telecom to Asian countries, particularly to Japan, and deregulating Japanese telecom policies for the use of email (thanks to help from the Late Commerce Secretary Malcolm Baldrige) [Chapter 1 of [Utsumi's Proposed Book](#)]. This triggered the de-monopolization and privatization of Japanese telecom industries. This movement has been emulated in many other countries, as having more than one billion email users around the world nowadays. American and other countries' university courses now reach many developing countries.

Since early 1980s, Dr. Utsumi promoted global e-learning and e-healthcare/telemedicine as conducting once or twice a year a series of innovative distance teaching trials with "Global Lecture Hall (GLH)™," multipoint-to-multipoint, multimedia, interactive videoconferencing with hybrid delivery technologies as spanning the globe [Chapter 2 of [Utsumi's Proposed Book](#)] and [[Utsumi, 2003](#)], including demonstrations of telemedicine from Finland and Amazon to the US.

Thanks to such efforts, Dr. Utsumi received the prestigious Lord Perry Award for Excellence in Distance Education in 1994 from Lord Perry, the founder of the U.K. Open University. The two-year senior recipient of the award was Sir Arthur C. Clarke, the inventor of satellites.

4.3 Peace Gaming Demonstration:

A demonstration of global-scale peace-gaming was held at the conference on "Crisis Management and Conflict Resolution" by the World Future Society (WFS) in New York City, in July of 1986. It was one of the largest and perhaps the most successful demonstrations of global gaming/simulation organized so far. The event was on a crisis scenario involving the U.S.-Japan trade and economy issues. Professor Onishi in Tokyo supplied his FUGI model, which is the world largest econometric model [[Onishi, 2007](#)].

Noted U.S. economists were panelists of this event and electronically interconnected with Japanese counterparts for three days of computer-assisted negotiations. Several hypothetical policies were examined. One question was the effect of raising military expenditures in Japan to the American level while lowering those of the U.S. to the Japanese level. Simulation predicted that the balance of trade would thus be even by the year 2000, with necessity of cooperation, rather than competition, by both countries in the future. This clearly indicated the cost and dilemma of American's nuclear umbrella protecting Japan's economic prosperity, thus threatening American's economic prosperity.

5 Global University System (GUS):

GLOSAS/USA then initiated the project of creating Global University System (GUS) [[Utsumi, et al. 2003](#)]. The GUS is a worldwide initiative to create advanced telecom infrastructure for accessing educational resources around the world across national and cultural boundaries for global peace (Figure 6). Education and job skills are the keys in determining a nation's wealth and influence. The GUS education thus will promote world prosperity, justice, and peace, based on moral principles rather than political or ideological doctrines. The aim is to achieve "education and healthcare for all," anywhere, anytime and at any pace.

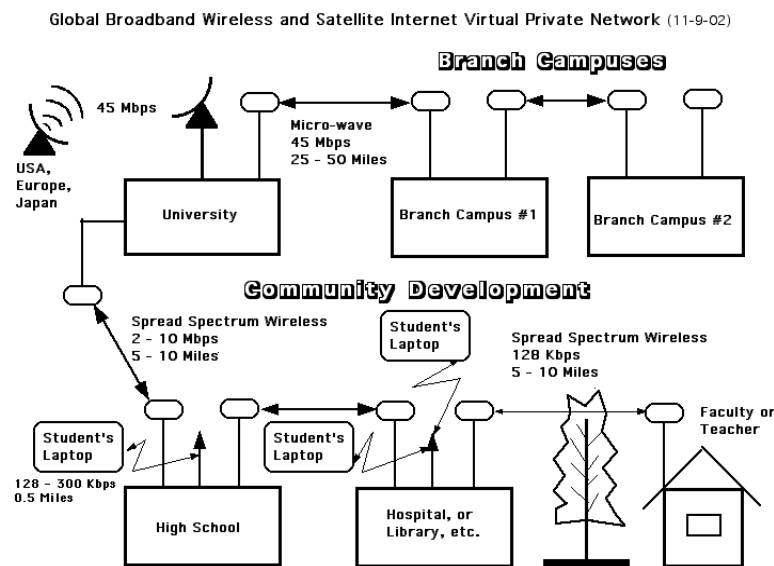


Figure 6

GUS aims to build a higher level of humanity with mutual understanding across national and cultural boundaries for global peace [Varis, et al, 2003]. The GUS helps higher educational and healthcare institutions in remote/rural areas of developing countries to deploy broadband Internet in order for them to close the digital divide. These institutions also act as the knowledge center of their community for the eradication of poverty and isolation through the use of advanced ICTs. Learners may take courses from different member universities around the world, obtaining their degree from the GUS, thus freeing them from being confined to one academic culture of a single university or country. The GUS program is a comprehensive and holistic approach to building smart communities in developing countries for e-learning and e-healthcare/telemedicine (Figure 7).

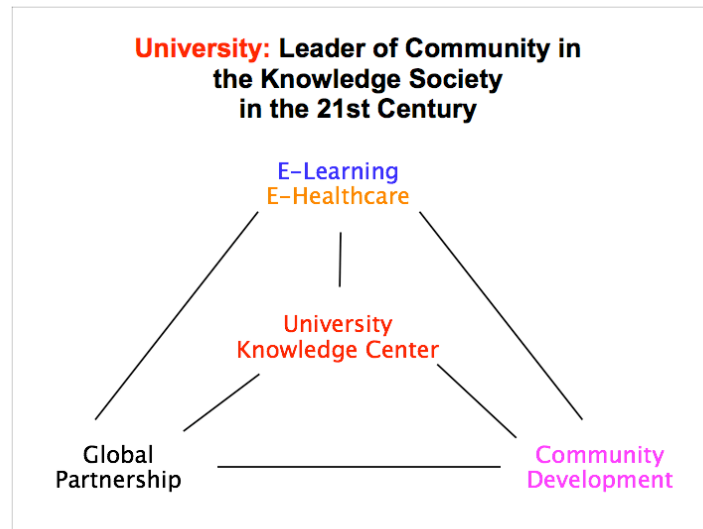


Figure 7: The word “University” has a connotation of “universe.” Hence, the university in remote/rural areas of developing countries ought to act as the knowledge center of their community for the eradication of poverty and isolation through the use of advanced ICTs.

The university has to provide not only e-learning and e-healthcare services to their community, but also to lead their community development. It also ought to be the gateway for globally collaborative research and development as fostering the Global Creative Economy in the borderless Knowledge Society of the 21st century.

GUS has group activities in the major regions of the globe in partnership with higher learning and healthcare institutions. They foster the establishment of GUS in their respective regions, with the use of an advanced global broadband Internet virtual private network. Those institutions affiliated with GUS become members of the GUS/UNESCO/UNITWIN Networking Chair Program located at the University of Tampere in Finland.

For the GCEPG/GSEED projects mentioned above, each GUS of various countries will maintain the sub-models of their countries autonomously – along with construction and maintenance of its databases, modification of their sub-models, and supply of game players in cooperation with their overseas counterparts through the global Internet.

5.1 Officers of GUS:

The officers of the GUS are: P. Tapio Varis, Ph.D., Acting President, (University of Tampere, former rector of the United Nations University of Peace in Costa Rica); Marco Antonio Dias, T.C.D., Vice President for Administration, (former director of Higher Education of UNESCO); Takeshi Utsumi, Ph.D., Founder and Vice President for Technology and Coordination, (Chairman of GLOSAS/USA). The trustee members are: Dr. Pekka Tarjanne, (former Director-General of the ITU) and Dr. Federico Mayor, (President of the Foundation for Culture of Peace and a former Director-General of the UNESCO).

5.2 Globally Collaborative Innovation Network (GCIN):

Spreading the culture of creative and innovative society (which is based on a firm democratic principle) can only be done with education -- and this is much better, effective and peaceful way of spreading democracy rather than using any weapons! Thanks to the advent of global broadband Internet and GRID networking technology, this can now be done more readily than before — and more so, in globally collaborative fashion. Globally Collaborative Innovation Network (GCIN) with a globally distributed computer simulation system will foster creativity of youngsters around the world. Our GCEPG project will be its powerful demonstration.

The principle of packet-switching technology (the basis of Internet) is “SHARING” to bring drastic cost reduction of expensive high-speed telecom lines, -- we are extending this principle to the sharing of knowledge and even wisdom with the creation of GUS. The principle of GRID networking technology is “COLLABORATION.” Those two principles of sharing and collaboration are the very basis of attaining global peace, which ought to be the ultimate aim of education rather than mere enhancement of job skills, as in the conventional educational institutions around the world. We hope to attain global peace by proliferating the use of Internet and GRID technologies around the world with e-learning and e-healthcare/telemedicine.

When the new development of the web conferencing feature [[BusinessWeek, 2005](#)] will accompany with the distributed computer simulation system through GRID network, it will create GCIN at down-to-earth, end-users’ level. This will be the future direction of e-learning, more than web-oriented teaching (for one-way knowledge transfer) and multipoint videoconferencing (for replicating face-to-face class-room setting), for collaborative, distributed, experiential learning and creation of new knowledge with youngsters around the world, which will hence promote mutual understanding for global peace. The word “Economically Underdeveloped” is not necessary synonymous to “Intellectually Underdeveloped,” thus, the GCIN will energize and motivate creativity of youngsters, especially in the so-called developing countries, and hence eradicating their poverty, illiteracy, and isolation.

The growth of advanced economies is driven largely by knowledge workers, such as scientists, engineers, managers, professionals, and artists, compared with only 10% manual labor in manufacturing industry in the U.S. and in the U.K.. We now need to bring youngsters around the world to become the world-class knowledge workers with global e-learning and create the environment for them to collaborate with the use of advanced ICTs and GRID networking technology. This is because the entire global economy increasingly revolves around innovations that flow from the creative classes.

6 Epilogue:

6.1 Future Direction of Education:

The trends of the 21st Century are; (1) the shift of the technology from analog to digital (e.g., slide rule to digital computer, circuit switching telephony to packet switching digital telecommunication), (2) the globalization of society, commerce, and culture, and (3) the emergence of new knowledge/creative economy out of manufacturing industrial structure [[Utsumi, 2005-a](#)].

The engineering is the realization of innovation, which is the commercial application of invention, which is based on creativity, which is the essence of Knowledge Economy Society of the 21st century. In the age of **globalization**, creativity ought to be made collaboratively in global scale, which in turn brings the mutual understanding among youngsters, and hence global peace.

Computer simulation and its successor, virtual reality/virtual laboratories, are always at the forefront of scientific and engineering research and development to create new knowledge. It has successfully replaced hardware-oriented experiments, e.g., design of aircraft, architecture, bridges, chemical plants, automobile crash testing, and even the design of pharmaceutical molecules, etc. With the advent of broadband Internet

around the globe and GRID networking technology, such research and development can now be conducted in distributed computer simulation mode in global scale as aggregating creativity of youngsters around the world. Future of education would be desirable to go along with this direction.

6.2 Creativity and Innovation:

Creativity is the province of Homo sapiens. We live for future, not in past. Science and technology open the future. However, the application of new technology often meets with “Creative Destruction” -- the famous words by Joseph Schumpeter. Any flora and fauna have to break their shell to have their new life (Photo 1). We need not only foster the creative capabilities of youngsters, but also help the destruction of the shells they face at emerging their new life. “The biggest barrier for new development of Human-Centric Knowledge Society is our Industrial Age mindset!” [Kautto-Koivula, et al, 2003]. The industrial age was based on tangible matters, which moral was obedience, e.g, Taylor’s “Time and Motion Study” as an extreme example. The raw materials of knowledge economy are intangible creativity and innovation for which there is no economic theory. Hence, the society has to devise an appropriate scheme to cherish and honor youngsters for their creativity and innovation.



Photo 1: “Creative Destruction”?, Photo taken at Da Vinci Science and Technology Museum, Milan, Italy (March, 2005)

6.3 Culture of America (Unique crucible for innovation):

The culture of America is particularly suited for the creative mind. It is a unique crucible for innovation. America is so much more innovative a place than any other country. America allows you to explore your mind. America is the greatest engine of innovation that has ever existed, and it can’t be duplicated anytime soon, because it is the product of a multitude of factors [Friedman, 2004]:

- Extreme freedom of thought,
- An emphasis on independent thinking,
- A steady immigration of new minds,
- A risk-taking culture with no stigma attached to trying and failing,
- A non-corrupt bureaucracy, and
- Financial markets and a venture capital system that are unrivaled at taking new ideas and turning them into global products.

These institutions, which nurture innovation, are the real crown jewels of American culture. The whole process where people get an idea and put together a team, raise the capital, create a product and mainstream it -- that can only be done in the U.S. The U.S. tech workers must keep creating leading edge

technologies that make their companies more productive -- especially innovations that spark entirely new markets. This is America's real edge.

An innovation economy demands that society be open, dynamic, educated, international, and risk-taking. Given chance, innovation can improve all our lives. Financial risk-taking is the fuel that powers the process of change. Worldwide innovation networks are the new keys to R&D vitality and competitiveness. Such networks – broadband, 24/7, wired and wireless -- in the knowledge economy society of the 21st century would nurture the “connected community” and build youngsters’ collaborations to provide the kind of leadership the digital age requires; and above all else, begin promoting the process of enhancing, encouraging and fostering creativity and innovation in all its forms -- in the schools, in the workplace and throughout the community [Eger, 2005].

We are now in the early stages of a new era, “Creative Age,” in which creativity and innovation will be the hallmarks of the most successful communities and vibrant economies. This age will thrive and prosper if the communities have tolerance for dissent, respect for individual enterprise, freedom of expression and recognition that innovation is the driving force for the new knowledge economy, not mass production of low-value goods and services.

At a time of intense division, with deep political and religious fault lines splitting the world, innovation stands out as a powerful integrative force. It ties countries, companies, and consumers together in creating value, solving problems, and generating wealth [BusinessWeek, 2004].

6.4 Knowledge and Wisdom:

The essence of education is the inheritance of wisdom (i.e., know-how on how to live a life), more than mere transfer of knowledge (Figure 8). We hope that, as an extension of our GCEPG/GSEED projects, learners will also form a global knowledge forum for the exchange of ideas, information, knowledge and joint research and development, which will foster creativity of youngsters around the world. Researchers in developing countries can co-work with colleagues in advanced countries to perform joint collaborative research with use of virtual laboratories for experiential/constructive learning and creation of knowledge through the global GRID technology, thus forming GCIN [Utsumi, 2006]. Such interactions among youngsters around the world through global broadband Internet would certainly promote mutual understanding and hence global peace.

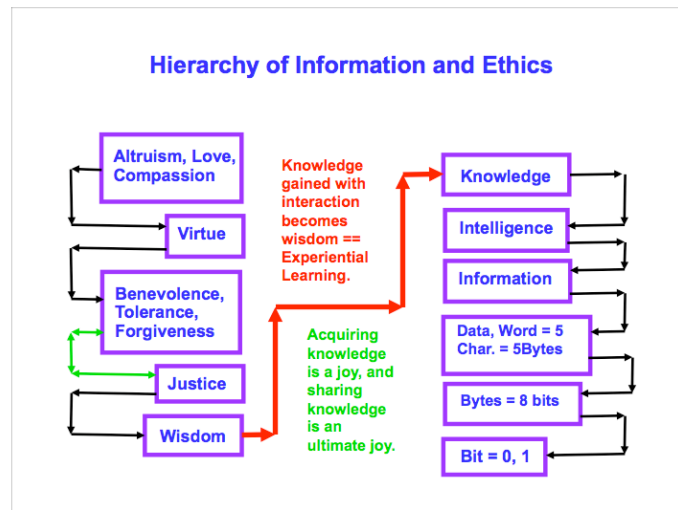


Figure 8: Dr. Hallan Cleveland, former president of the University of Hawaii and former US Ambassador to NATO, once wrote that 8 bits become one byte, 5 bytes become one word or data, which becomes information. Information selected with intelligence becomes knowledge. We then expanded its hierarchy as depicted above. As shown, each item is controlled by the one above. However, Justice and Forgiveness/tolerance have to be two-way interaction.

7 Financing GUS and GCEPG/GSEED Projects:

Our projects will combine (1) the Japanese government's Official Development Assistance (ODA) funds and (2) Japanese electronic equipment with (a) the Internet technology and (b) content development of North America and Europe, to help underserved people in rural and remote areas of developing countries by closing the digital divide.

Incidentally, Dr. Utsumi helped the Japanese government to pledge US\$15 billion during the 2000 Okinawa Summit, which initiated the “Closing Digital Divide” movement of the United Nations and others.

8 Conclusions:

The GUS program is a comprehensive and holistic approach to building smart and creative communities [[Eger, 2003-a](#) and [Eger, 2003-b](#)] in developing countries for e-learning and e-healthcare/telemedicine. Initiatives are underway to create the necessary infrastructure and educational liaisons, and some near-term educational access is expected.

GUS and GCEPG are clearly ambitious programs, one that cannot be achieved by any one group, university, or national government. The programs require substantial collaborative contribution of ideas, expertise, technology resources, and funds from multiple sources. Those who value the visions of GUS and GCEPG are invited to join this great and noble enterprise.

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Dr. Takeshi Utsumi is the Founder and Vice President for Technology & Coordination of Global University System (GUS) and the Chairman of the Global Systems Analysis and Simulation Association in the U.S.A. (GLOSAS/USA). He is the 1994 Laureate of the Lord Perry Award for Excellence in Distance Education. His public services have included political work for deregulation of global telecommunications and the use of e-mail and voice over Internet Protocol (VoIP) through ARPANET, Telenet and Internet; helping extend American university courses to developing countries; the conduct of innovative distance teaching trials with "Global Lecture Hall (GLH)TM" multipoint-to-multipoint multimedia interactive videoconferences using hybrid technologies; as well as

lectures, consultation, and research in process control, management science, systems science and engineering at the University of Michigan, the University of Pennsylvania, M.I.T. and many other universities, governmental agencies, and large firms in Japan and other countries.