

Globally Collaborative World Gaming with Global University System

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1. Introduction

Attaining global peace and alleviating global warming 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

2.1 Intercultural understanding of societal problems

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. Different cultures can for example understand that 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. Different cultures can understand this idea.

“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

One culture cannot and should not dominate the other; there should be close dialogues between them. In transcending those different cultures of East and West and North and South 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. One does believe in rationality and the universal value of science and education.

2.3 Hierarchy of Civilization, Culture and Religion:

To understand culture, one has to understand the interrelation of civilization, culture and religion. The hierarchy of between those different areas may be depicted as follows (Figure 1);

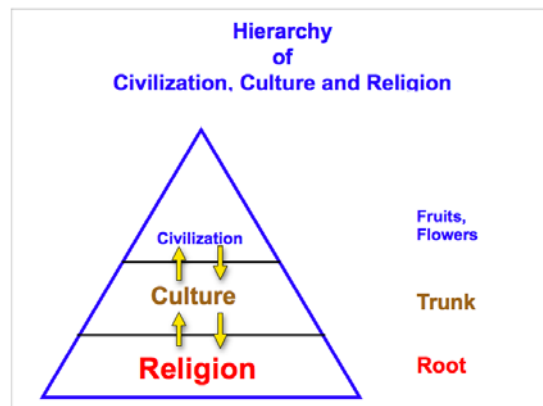


Figure 1

Religion may correspond to the root of a tree, culture to the trunk and civilization to its 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 could 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. This 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 Examples of intercultural collaboration

3.1 Globally Collaborative Environmental Peace Gaming (GCEPG) Project

The GCEPG (Globally Collaborative Environmental Peace Gaming (GCEPG) Project 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. Such a game can transfer the war game to a peace game, moving resources of the planet to sustainability.



Figure 2

It is a big game with many technological challenges as was acknowledged by John McLeod.

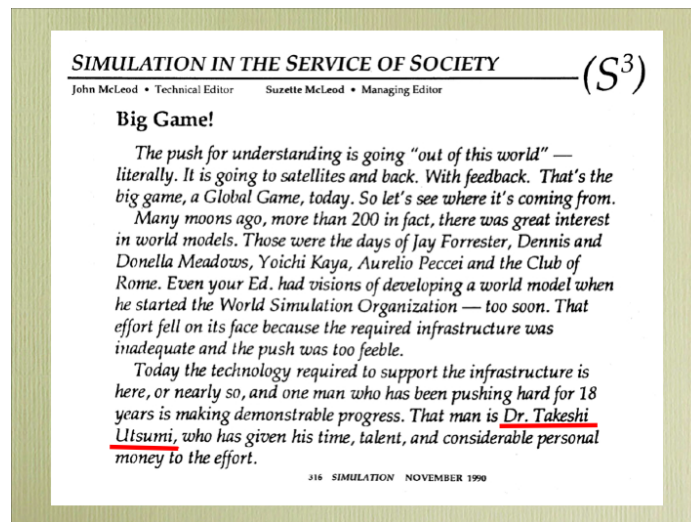


Figure 3

With global GRID computer networking technology [[McLeod, 2000](#)]) and Beowulf mini-super computers of cluster computing technology, such a simulation system can be developed.

Initiation of GRID Concept

Excerpt from

SIMULATION IN THE SERVICE OF SOCIETY (S3), Simulation, September 2000

John McLeod A Technical Editor

Suzette McLeod A Managing Editor

Power (?) Grid!

As readers may have noticed, this writer has been interested in the desirability/possibility of someone, or some agency, developing a global communication network since my first discussing the matter with **Tak Utsumi** in 1972. At the time Tak and I were both primarily interested in the use of such a network for the distributed simulation of "Peace Gaming," as contrasted with the war games so widely used by the military of all countries. However, my early enthusiasm had to be redirected from personally contributing to such an undertaking when I realized the enormity of the technical problems. But **Tak has persevered and has successfully demonstrated many components of a necessary infrastructure.**

Tak and his colleagues have had to raise funds from any sources that they could, as well as pushing back the technical frontiers. But recently several powerful publicly funded organizations have entered the picture. NASA of course has a worldwide communication network which is necessary in support of its space program. However, I understand--perhaps mistakenly--that it is to be made available commercially. More on that when I learn more.

And now we have the following article describing a communication network which it seems to me is misnamed, and I wonder how many others, think of a power grid as a network for the distribution of electrical power. Be that as it may, the description seems to be that of an information network, and the list of participants seems to indicate that it is supported largely by the National Science Foundation. -JM

Building an Information Power Grid ...

<http://makeashorterlink.com/?H241159B9>

Figure 3

3.2 Globally Distributed Climate Simulation System

An Information Power Grid can also be used to handle the pressing problem of global warming. Human activities are now causing global warming, which will lead to major environmental, social and economic havoc in the years ahead. For the sake of our future generation, it is urgent to curb the sources of such global warming. Moreover, the accelerating trends are high and still raising consumption levels in the industrialized countries; continued population increase in developing countries and the rise of living standards with economic improvement are causing severe strain to resource availability, particularly water in many parts of the world. This will inevitably lead to conflicts of interest among various stakeholders. Examples include bio-fuel vs. food production in poor countries, land grabbing by wealthy nations to feed their population, to name two. There will be many other conflicts on environmental issues in local, regional and global scales.

Subsequently, it is now urgent to educate young people who are now in their teens and twenties who will be the decision makers in the 2030s. Under current scenarios it is likely that most of the United Nations Millennium Development Goals (MSGs) will not be met, hence the trend for more fierce resource competition and potential conflict. The new decision maker generation must therefore be well prepared to cope with those issues. Their training should be evidence based, as it is possible to do using systemic simulation models to play out different policy scenarios and then make informed decisions.

In this area, gaming/simulation is the best tool we have for understanding the world's confrontation prone problems and the solutions we propose for them. Their understanding gained with scientific and rational analysis and critical thinking with the

gaming/simulation could be the basis of the international handling of the problem of global warming.

Moreover the problem of global warming cannot be handled without changing the socio-economical world system and is interrelated in this way to the problem of 'peace and war', because to solve this problem one has to move resources of the planet to sustainability.

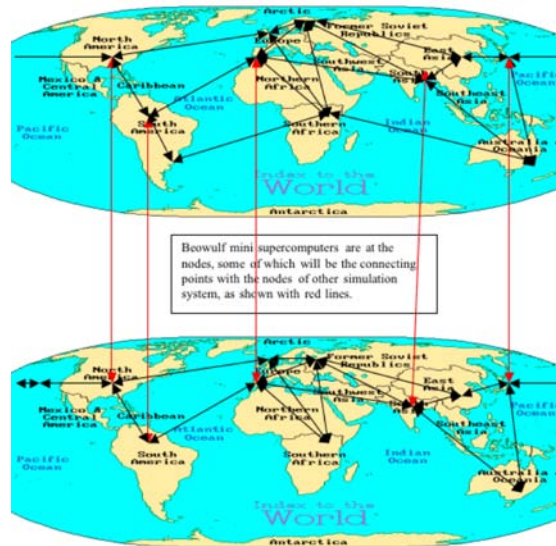
4. Technical Infrastructure

With the advent of global cloud computing technology, we can develop a socio-economic-environmental simulation system and a climate simulation system in parallel fashion, both of which are to be interconnected in global scale (figure 4).

Each country model runs all the time, continuously and repetitively, say, from the year 2000 to 2050, as similar to a repetitive analog computer. The graphical presentation of the year 2000 to the present would be the past data, and the one from the present to the 2050 would be the prediction made by the simulation model. The initial conditions at the present would be revised with the fresh input data, say, about the national consensus or GDP (gross domestic product) figure, etc. This makes the simulation similar to the one of a simulator/trainer of a nuclear power plant or petroleum refinery or ethylene plant -- alternatively it could be the engine of a large oil tanker, which President Obama often quotes as analogous to the operation of the United State economy.

Each Global University System (GUS) (which is an associating project) 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.

Globally Distributed Climate Simulation System (GDCSS)



Globally Distributed Socio-Economic-Environmental Simulation System (GDSEEESS)

Figure 4

Each Global University System (GUS) (which is an associating project) 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. Gaming/Simulation Demonstration

We plan to conduct a gaming/simulation demonstration¹ on the verification of energy policies proposed by former Vice President, Mr. Al Gore and President Barack Obama (both Nobel Peace Laureates) to replace fossil fuel with renewable one (e.g., wind and/or solar energy) to generate electricity in the USA in ten years in relation to appropriate allocation of oil revenue in Niger Delta of Nigeria, -- What would also be the

¹ This is to be held during Global Symposium on “Climate Change and International Peace and Security, Global Challenges and Global Solutions” at the Interdisciplinary Approaches Center for International Conflict Resolution (CICR) in the School of International and Public Affairs (SIPA) of Columbia University in May 2010 (tentative). The potential invitees would be from all different fields including scientists, energy specialists, military figures, academics, practitioners, policy makers, government representatives and representatives from multi-lateral organizations.

The main idea of this conference is mainly based on conflict resolution; “Much of the public and political debate on global warming has focused on finding substitutes for fossil fuels, reducing emissions that contribute to greenhouse gases and furthering negotiations toward an international climate treaty — not potential security challenges.” “Or we will pay the price later in military terms,” -- “And that will involve human lives.” (Broder, 2009)

consequences to other economic and social structures in the US and in other countries, particularly Nigeria? Would this be a viable direction? The Nobel Peace-winning Intergovernmental Panel on Climate Change (IPCC) also advocated reduction of meat-eating for mitigating climate change. How would this affect food availability and price, the environment, human health and social structures in the US as well as in other countries?

6. Global University

Such projects has to imbedded in an international scientific and educational context. 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 to handle societal problems such as global peace , environmental pollution and global warming. 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.

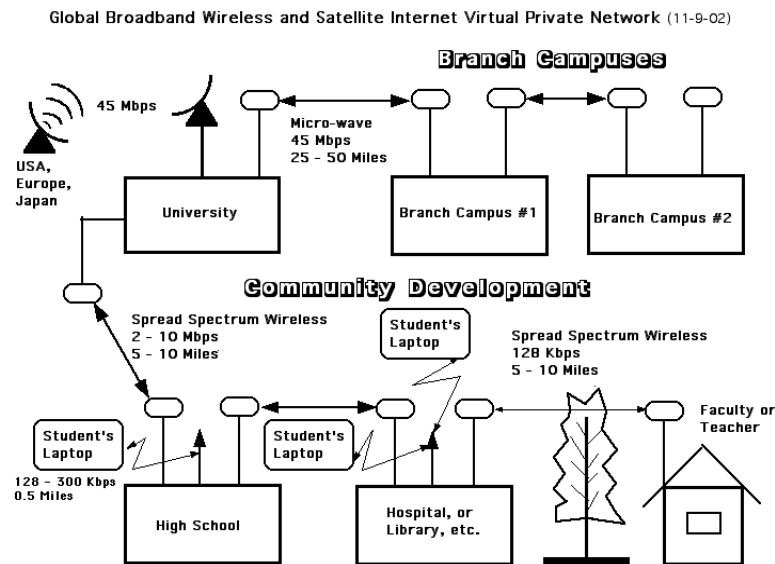


Figure 5

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 6).

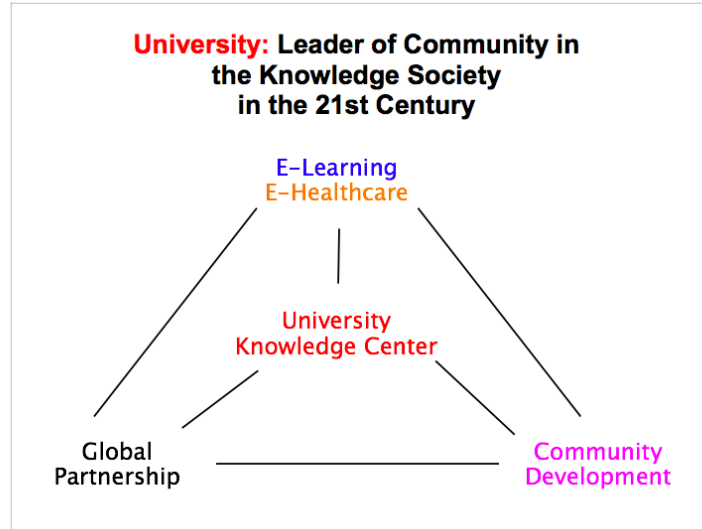


Figure 6

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 countries² 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.

7. Epilogue

7.1 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.

7.2 Creativity and Innovation:

Creativity is the province of Homo sapiens. We live for the future, not in the 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

² 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).

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)

7.3 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.

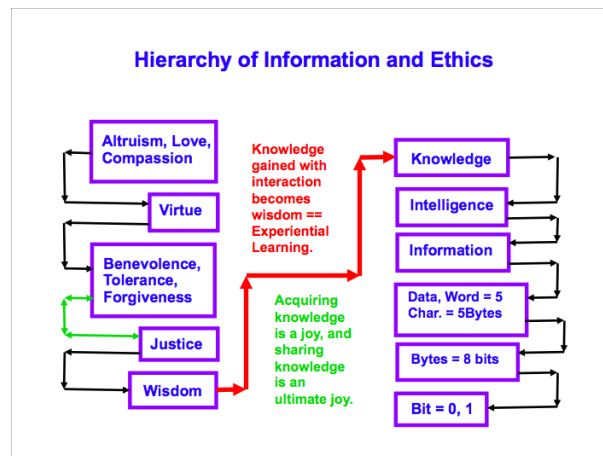


Figure 7

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Participants of the GSEED Project

Bangladesh

1. **Association for Advancement of Information Technology (AAIT)**
2. **Bangladesh Disaster Preparedness Centre (BDPC)**
3. **Bangladesh University of Engineering and Technology (BUET)**
4. **BRAC University**

Canada

1. **International Society for Systems Science**
2. **University of Ottawa**

Japan

1. **Foundation for Fusion of Science and Technology (FOST)**

Netherlands

1. **International Research Society on Methodology of Societal Complexity**

Nigeria

1. **African University of Science and Technology (To be invited)**
2. **Obafemi Awolowo University (To be invited)**

Russia

1. **Novosibirsk State University**
2. **Russian Academy of Sciences**

Turkey

1. **Bogazici University**

United States of America

1. **Columbia University**
2. **GLObal Systems Analysis and Simulation Association in the U.S.A. (GLOSAS/USA)**
3. **McLeod Institute of Simulation Sciences (MISS) at California State University at Chico**
4. **Millennium Institute**
5. **Polytechnic Institute of New York University**
6. **University of Maryland**